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SUCCESSFUL TREATMENT OF BRUCELLA MENINGITIS WITH IMMUNE HUMAN SERUM: ISOLATION OF THE ORGANISM BY A MODIFIED CULTURAL METHOD*

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TWO cases of meningitis due to *Brucella abortus* have recently been observed which are of especial interest in that the patients were treated intrathecally with fresh human immune serum and isolation of the organisms from the spinal fluid was accomplished by means of a special technic described below.

Hughes[1] in 1897 observed meningeal symptoms in a patient with Malta fever and succeeded in isolating *Micrococcus melitensis* from the meninges at necropsy. Lemaire[2] in 1924 was successful in obtaining a culture of *Brucella melitensis* from the spinal fluid of a patient with meningitis. Since then brucellae have been isolated from ten patients with meningeal involvement.[3, 4, 5, 6, 7, 8, 9, 10, 11]

DeJong[11] described a case of meningitis due to the bovine variety which was treated with three intravenous injections of a commercial polyvalent antibrucella serum (bovine variety). There was "little objective improvement" following serum therapy.

CASE 1. Mrs. E. I., No. 60,694, a white textile worker of 50 years, was admitted to the Duke Hospital November 11, 1935, with the complaint of "chills, fever, headache and nausea of nine weeks' duration". The onset of her illness was sudden. She was awakened in the middle of the night by a severe chill, followed by headache, nausea, vomiting and aching in the back of the neck, along the spine and in the legs. During the first two weeks of the disease these symptoms recurred every third night. The vomiting was not projectile and there was no evidence of involvement of the central nervous system. Four days after the onset, she was referred to the Hugh Chatham Memorial Hospital, Elkin, North Carolina, by Dr. Hugh Parks. While there she gradually became jaundiced, the white blood cell count rose to 27,000 per c. mm. and localizing signs developed in the upper right quadrant of the abdomen. At operation, a "strawberry type" gallbladder was removed by Dr. C. L. Haywood, Jr., who noted a local brownish discoloration of the liver. Following cholecystectomy there was some improvement in the patient's condition with a drop in the white blood cell count to 18,000 per c. mm. Five days later, the headache, nausea, intermittent chills and fever reappeared. No malarial parasites could be demonstrated in the blood. Two weeks before admission to the Duke Hospital (seven weeks after onset) the neck became stiff. Three successive lumbar punctures revealed a cloudy fluid, a pressure above 200 mm. of water and 500 to 1000 leucocytes per c. mm. with a preponderance of polymorphonuclears. No organisms were found on smears and no growth appeared in cultures.

Examination on admission revealed a fairly well-nourished, co-operative, but very lethargic woman. Her neck was stiff; Kernig's and Brudzinski's signs were present, with the abdominal reflexes absent. Vision was good; there was no choking of the optic discs; and the other cranial nerves were intact. The tendon jerks were active and equal; there was no motor or sensory loss; Babinski's sign and clonus were absent. The lymph nodes and spleen were not enlarged and there were no other abnormal findings. There was no anemia and the red cells showed no parasites or other abnormalities. The blood leucocyte count was 18,000 per c. mm. with 90 per cent polymorphonuclears (44 per cent nonsegmented forms). A blood Wassermann test was negative; the stool was negative for occult blood and parasites; the urine was negative except for a trace of acetone.

Lumbar puncture revealed cloudy fluid with an initial pressure of 100 mm. of water. There were 925 leucocytes per c. mm. with 86 per cent polymorphonuclears and 14 per cent mononuclears; Pandy test 1+. The smear showed two small gram-negative coccobacilli. The Wassermann and colloidal mastic tests were negative. Two days later the initial pressure of the spinal fluid was 80 mm. and the cell count 110 per c. mm. with 40 per cent polymorphonuclears and 60 per cent mononuclears; Pandy test 3+. *Brucella abortus* was cultured from this fluid, using the special technic to be described presently.

The organism was agglutinated by our stock antibrucella (bovine) rabbit serum in a dilution of 1:1280. Through the courtesy of Dr. Edward Francis the organism was studied at the National Institute of Health, Washington, and found to be agglutinated by bovine antiserum in a dilution of 1:2560.

The patient continued to have headache, vomiting and an undulating type of fever. On November 15, four days after admission, more spinal fluid was removed and again a positive culture was obtained. At this time 16 cc. of fresh human immune serum* were introduced intrathecally. The serum used agglutinated the organism isolated from the patient's spinal fluid in a dilution of 1:320 and killed it in a dilution of 1:1000. This treatment was repeated on November 17, 18 and 20, a total of 74 cc. of serum being given. The spinal fluid

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*The serum used for treatment was obtained from one of us (M. A. P.) who had been immunized eight years previously to multiple strains of all three varieties of brucella with no subsequent injections of vaccine. During the past eight years about fifteen strains of this organism which we have isolated have all been agglutinated by this serum.

after treatment was no longer cloudy, no growth was obtained and the total cell count fell to 36 per c. mm., with a decrease in polymorphonuclears and a corresponding increase in mononuclears. This change was accompanied by striking clinical improvement. Following the first treatment, the patient's temperature fell to normal and remained normal. All signs of meningeal irritation disappeared two days after the last injection.

At no time was any growth of brucella obtained from the blood, urine or feces, and the patient's serum never agglutinated her own or stock organisms. An autogenous vaccine was prepared from the cultures isolated from the patient. After six subcutaneous injections of the vaccine, totaling 5 cc., the patient's serum agglutinated her own and stock antigen in a dilution of 1:80. The patient was discharged November 27, 1935, symptom-free.

CASE 2. This was a girl of 7 years who had had symptoms of a low-grade meningitis for a month and had been treated at home by her family physician. Following two lumbar punctures she was partially relieved of symptoms for a period of ten days. The spinal fluid from the first puncture contained gram-negative bacilli which resembled *Hemophilus influenzae*, but cultures by ordinary methods were negative. The second fluid revealed no organisms in smear and no growth was obtained. The symptoms soon returned and the patient was admitted to the Duke Hospital on January 6, 1936.

Brucella abortus was isolated from the spinal fluid taken at the Duke Hospital and complete recovery followed intrathecal injections of the same human immune serum as was used in case 1. The serum agglutinated this strain of brucella in a dilution of 1:640. A series of injections of autogenous vaccine was given to prevent a relapse. The details of this case will be reported elsewhere.[12]

Amoss and Poston[13] have described an agglutination technic by which they were able to obtain positive cultures of brucella from the feces. The same principle was utilized in culturing the spinal fluids from the two cases described above.

One cc. of a 1:100 dilution of inactivated polyvalent antibrucella rabbit serum was mixed with 5 cc. of the spinal fluid and incubated for one-half hour. The spinal fluid serum mixture was then centrifuged at high speed for fifteen minutes and the sediment planted on liver infusion blood agar slants and grown at 37° C. under increased carbon dioxide tension. To accomplish the latter, the upper portion of the test tube was heated in the flame to force out some of the air, the expired breath of the bacteriologist was blown into the tube through a sterile plugged pipette and a rubber stopper immediately inserted.

Growth appeared in tubes inoculated from the mixture of spinal fluid and serum within twenty-four hours, whereas cultures of the untreated spinal fluids, some of which were centrifuged, showed no growth on the same medium until after seventy-two hours.

Brucella infection should be suspected in cases of atypical meningitis. Brucella meningitis can be treated by human immune serum obtained from individuals, who have been actively immunized to brucella, or possibly from convalescent cases in the community, who have high agglutinating titers in their blood serums for the specific organism isolated from the spinal fluid.

Patients who have no agglutinins for brucellae in their blood after recovery should be immunized with their own organism to prevent a recurrence of the infection.

SUMMARY

1. A method of culture is described in which *Brucella abortus* can be grown after being precipitated by specific agglutinating serum.

2. Two cases of brucella meningitis are discussed that recovered rapidly and apparently completely after intrathecal treatment with fresh human immune serum.

3. In the absence of subsequent active immunity, such an immunity was induced by autogenous vaccine therapy.

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Massachusetts Medical Society

PROCEEDINGS OF THE SOCIETY

First Day, June 8, 1936

THE one hundred and fifty-fifth anniversary was observed in Springfield on June 8, 9 and 10, 1936. The headquarters were maintained in the Municipal Auditorium and all of the scientific meetings were held and all exhibits shown in this building. The meeting of the Council, the Annual Dinner and the Annual Meeting of the Society were held at the Hotel Kimball. A series of demonstrations and clinics was held in each of the hospitals in Springfield.

On Monday morning, June 8, the Section of Dermatology and Syphilology met in the Mahogany Room of the Auditorium. The officers of the Section were Dr. Harvey P. Towle of Boston, Chairman, and Dr. Rudolph Jacoby of Boston, Secretary. The attendance was 102. At the business meeting the following officers were elected for the ensuing year:

Chairman, C. Morton Smith, Boston.
Secretary, J. Harper Blaisdell, Winchester and Boston.

Monday afternoon the Section of Obstetrics and Gynecology met in the Lower Section Room of the Auditorium. The officers of the Section were Dr. Charles J. Kickham of Brookline, Chairman, and Dr. Raymond S. Titus of Boston, Secretary. The attendance was 170. At the business meeting the following officers were elected for the ensuing year:

Chairman, Raymond S. Titus, Boston.
Secretary, Roy J. Heffernan, Boston.

At the same time the Section of Radiology and Physiotherapy held its meeting in the Mahogany Room. The officers of the Section were Dr. Philip H. Cook of Worcester, Chairman, and Dr. William G. Curtis of Wollaston, Secretary. The attendance was 100. At the business meeting the following officers were elected for the ensuing year:

Chairman, William G. Curtis, Wollaston.
Secretary, Frank E. Wheatley, Milton and Boston.

At 4:00 o'clock a "Kicker's" Golf Tournament, open to members of the Massachusetts Medical Society and their guests, was held at the Springfield Country Club. This was conducted under the auspices of the local chairman, Dr. Richard A. Rochford. In addition to the prizes contributed by exhibitors and friends of the Society there was a substantial cash donation from a sister society which was used for the purchase of appropriate cups.

Monday evening the Shattuck Lecture was delivered by Dr. George Blumer, David P. Smith Clinical Professor of Medicine at Yale University Medical School, on the subject of "Trichinosis, with Special Reference to Changed Conceptions of the Pathology and Their Bearing on the Symptomatology." (This paper appeared in *The New England Journal of Medicine,* issue of June 18.) Following the lecture, light refreshments were served in the Good-Fellowship Room.

Second Day, June 9, 1936

Tuesday morning the Section of Surgery met in the Lower Section Room of the Auditorium. The officers of the Section were Dr. E. Parker Hayden of Boston, Chairman, and Dr. Frederick S. Hopkins, of Springfield, Secretary. The attendance was 200. At the business meeting the following officers were elected for the ensuing year:

Chairman, Frederick S. Hopkins, Springfield.
Secretary, Augustus Thorndike, Jr., Boston.

Medical Clinics were conducted at the Springfield, Wesson Memorial and Mercy Hospitals. At 10:00 o'clock the Supervising Censors met in the Library of the Hotel Kimball and the Council assembled for its annual meeting in the Ballroom at 10:30 o'clock. This meeting was followed by the Cotting Luncheon for Councilors which took place at 1:00 o'clock.

Tuesday afternoon the Section of Medicine met in the Lower Section Room of the Auditorium. The officers of the Section were Dr. William D. Smith of Boston, Chairman, and Dr. Laurence B. Ellis of Boston, Secretary. The attendance was 262. At the business meeting the following officers were elected for the ensuing year:

Chairman, Laurence D. Chapin, Springfield.
Secretary, George D. Henderson, Holyoke.

At 5:00 o'clock all members of the medical profession were invited to attend a Symposium on Medical Economics sponsored by the Public Relations Committee of the Massachusetts Medical Society. The round table discussion was opened by Dr. Charles E. Mongan, President of the Society, who recalled the history of certain movements at home and abroad which affect the economic status of the physician. Particular reference was made to the implication

of the Complete Social Security Plan which was originally designed to include provision for Compulsory Health Insurance. Apparently the profession has been thoroughly aroused on this point, and while it will welcome a plan which will promote the public good, it will resist vigorously any attempt to alter the voluntary and personal relations between patient and physician. There was considerable discussion of the activities of the Committee on Public Relations which through its subcommittees has done much to inform the public and to study the actual question of the adequacy of medical care in this state.

Those participating included Dr. Michael Tighe of Lowell; Dr. Ralph R. Stratton of Melrose; Dr. Victor Bychower of Malden and Dr. E. L. Hunt of Worcester.

The attention and interest of the 150 physicians attending the symposium were remarkable. The session lasted one hour and fifteen minutes.

The Annual Dinner was served in the Banquet Hall of the Hotel Kimball at 7:00 o'clock. There were approximately 371 people in attendance. Following the invocation by the Reverend Father John J. O'Connor, of Northampton, the President, presented His Honor, Henry Martens, Mayor of Springfield who welcomed the Society to the celebration of the Three Hundredth Anniversary of Springfield. The President next presented the other officers of the Society and the past presidents who were at the dinner. Dr. Henry Jackson of Boston was introduced and a tribute paid to him for his long and successful medical career. There were two guests from abroad, Dr. Charles M. Lilley of Brisbane and Dr. A. Britten-Jones of Adelaide, Australia. Representative Emma E. Brigham spoke briefly concerning legislative activities of the Society during the past year and complimented the Society upon the completion of a successful program. Mrs. Brigham was a valuable aid in securing these successful results. Dr. Roger I. Lee spoke briefly as the Trustee of the American Medical Association and commented upon the prominent part which Massachusetts plays in the national organization.

The President next presented the guest speaker of the evening, the Reverend Michael J. Ahearn, S.J. Father Ahearn, who is Professor of Chemistry and Geology at Weston College and a scientist of international reputation, spoke entertainingly concerning a recent trip, under the auspices of the National Council of Jews and Christians, which was organized for the purpose of promoting tolerance among religious sects.

The benediction was pronounced by the Reverend Percy T. Edrop, Dean of Christ Church, Springfield.

Following the Annual Dinner there was dancing in the Ballroom.

Third Day, June 10, 1936

Wednesday morning the Section of Pediatrics met in the Lower Section Room of the Auditorium. The officers of the Section were Dr. George P. Hunt of Pittsfield, Chairman, and Dr. James M. Baty of Belmont and Boston, Secretary. The attendance was 150. At the business meeting the following officers were elected for the ensuing year:

Chairman, J. Herbert Young, Newton and Boston.

Secretary, James M. Baty, Belmont and Boston.

At the same time the Section of Tuberculosis met in the Mahogany Room of the Auditorium. The officers of the Section were Dr. Donald S. King of Boston, Chairman, and Dr. Olin S. Pettingill of Middleton, Secretary. The attendance was 125.

At the business meeting the following officers were elected for the ensuing year:

Chairman, Olin S. Pettingill, Middleton.

Secretary, Theodore L. Badger, Brookline and Boston.

Surgical Dry Clinics were conducted at the Springfield, Wesson Memorial, Shriners' and Mercy Hospitals.

Operative Clinics were held each morning during the meeting at 8:00 o'clock at the Mercy, Shriners', Springfield and Wesson Memorial Hospitals.

Annual Meeting

The Annual Meeting of the Massachusetts Medical Society was held in the Main Dining Room, Hotel Kimball, Springfield, on Wednesday, June 10, 1936, at 12 o'clock noon. The President of the Society, Dr. Charles E. Mongan, presided and the Secretary, Dr. Alexander S. Begg, was present.

The meeting was called to order and the President announced that the minutes of the previous meeting had been published in the issue of *The New England Journal of Medicine* for August 1, 1935 and that if there were no corrections he would declare them approved as published.

The Secretary reported on changes of membership for the year.

Changes in Membership

Membership Reported June 5, 1935			5016
Losses			
Deaths	85		
Resignations	25		
Deprivations	42		
		152	
Gains			
New Fellows	244		
Readmitted by Censors	4		
Restored by Council	8		
		256	
Net Gain			104
Membership Reported June 10, 1936			5120

Dr. Bernard Zuckerman of Dorchester presented a resolution approving of a reorganization of medical care and practice so as to provide the service needed by the people and at the same time assure to the members of the profession economic security for the proper pursuit of their profession. This resolution was accompanied by a plan. The matter was referred to the Committee on Public Relations.

The President then declared the meeting to be in executive session and requested all persons not members of the Massachusetts Medical Society with the exception of the stenographer to withdraw from the meeting. He appointed Dr. Conley of Malden to act as sergeant at arms. The President presented the report of the special committee consisting of the presidents of the eighteen district medical societies which was ordered at the last Annual Meeting of the Society. This committee was appointed to consider the findings of the Board of Trial and to recommend to the Society at this meeting such action as seemed to it just and necessary. The report of the committee recommends that the majority report of the Board of Trial in the case of Dr. Nicandro F. DeCesare be approved. After considerable discussion a rising vote was called for and the report of the committee was approved and the findings and recommendations of the majority of the Board of Trial were adopted. The executive session was then dissolved by the President and the regular order of business was resumed.

Dr. William R. Morrison of Suffolk, on behalf of the Committee of Arrangements, extended thanks to the physicians, nurses and hospitals of Springfield as well as to the Mayor and citizens of the city for the cordial hospitality and assistance which had resulted in a most successful meeting. He likewise paid tribute to the effectiveness of Dr. Allen G. Rice, Dr. Theodore S. Bacon and Dr. Hervey L. Smith and their associates on the Local Committee of Arrangements. He called attention to the excellent program of entertainment which had been provided for the ladies by Dr. W. A. R. Chapin and Dr. James A. Seaman and those associated with them. The President, Dr. Mongan, asked that this be regarded as a resolution offered by Dr. Morrison and called for a vote which appeared to be unanimous.

Dr. William H. McBain of Middlesex South next offered the following resolution which was duly seconded by Dr. Bigelow and unanimously accepted.

Mr. President and Fellows of the Massachusetts Medical Society:

I wish to offer a resolution.

Whereas: The 155th Annual Meeting of the Massachusetts Medical Society now drawing to a close will take its place as the equal of any of the numerous instructive and entertaining meetings which have preceded it, it is now fitting that the Society show its appreciation of the vast amount of work necessary for the proper planning and the successful consummation of those plans.

Therefore, be it resolved: That the Massachusetts Medical Society is deeply grateful to Mr. Robert St. B. Boyd, our Executive Assistant; to our own admirable Committee of Arrangements; to the Chairmen and Secretaries of the various Sections; to all who have entertained us by their valuable and instructive papers in the different Sections; to all those who, with much labor and expense, have given us such outstanding Scientific, Commercial, Medico-Historical and the Hobby Show Exhibits, to the management and the staffs of the fine hospitals of which Springfield may well be proud; to the Mayor of Springfield for his gracious words of welcome; to the Reverend Father Ahearn, who, in his inimitable manner, so delightfully entertained us and at the same time gave us such sane counsel regarding one of the most vexing problems confronting the world today; to the management and the employees of the Kimball Hotel and the Municipal Auditorium, to whom no small part of the success of this meeting has been due; and to our President, Dr. Mongan, and our Secretary, Dr. Begg, both of whom have been untiring in their efforts throughout the year to continue the high standing which the Massachusetts Medical Society has attained.

Dr. Allen G. Rice of Hampden asked Dr. Hervey L. Smith of Springfield to say a word to the Society. His remarks were as follows:

"Mr. President and Fellows, the Local Committee have been showered with congratulations and praise, and not one word of criticism or complaint has come to our ears. For this we are very grateful. But there is one man little known to you who contributed greatly to the success of this meeting, and to that man, Mr. Boyd, the Hampden District Medical Society wants to offer its heartfelt thanks for the splendid job he has done." The President commented that the applause indicated that the Society agreed with the speaker.

The President then proceeded to render his report on the state of the Society.

To the Members of the Massachusetts Medical Society:

Section 1 of Chapter 2 of the By-Laws of the Massachusetts Medical Society directs that the President shall render a report on the state of the Society at the Annual Meeting. In accordance with this request, I most respectfully submit for your consideration a report on the state of this Society.

The past year has been one of great activity on the part of the Massachusetts Medical Society. Many questions of interest to the Society have been considered; questions which concern the individual members of the Society; questions which concern the Society as a whole; medical questions, the solution of which concerns the community at large; and also the matter of postgraduate instruction. As the years go on, the study of medical economics will become more and more important. It is fitting that each member of the Society should make an intensive study of medical economics. On the proper solution of the problems in the field of medical economics depends the very existence of our Society as now constituted and the professional standing of the individual physician.

The most important question that came under consideration by our Society this year was the bill introduced into the Legislature, which had for its

object the raising of the standards for medical education as applied to the registration of physicians. This bill places the responsibility for educational standards in the hands of a newly created board consisting of the Commissioner of Education, the Commissioner of Public Health and the Secretary of the Board of Registration in Medicine and it covers premedical as well as medical instruction. For years, the Medical Society has been endeavoring to bring about this result. I am happy to inform you that at last a bill, which is satisfactory to our Society, has been passed by the Legislature and signed by the Governor. I am of the opinion that it will place no hardship on any medical school to meet the fair requirements which are demanded by this law. All medical schools will have until 1939 to comply with the law.

The passage of this law was attended by long discussions in the Legislature. The bill was fully discussed and frequently amended, especially in the Senate. The Legislature approved the bill by a large majority. The bill was sent to the Governor for his signature. Governor Curley, at a conference with representatives of your Society and representatives from two medical schools, suggested a further amendment to the bill. This suggestion of the Governor's was accepted by all at the conference. The bill with the suggested amendment was returned to the Legislature, was passed with but little discussion, returned to the Governor, was signed by him and is now a law.

This great work was not accomplished without study and hard work by the Executive Officers of your Society and the Committee on State and National Legislation. The work of these bodies would have been of no avail if it had not been for the generous support and backing of the rank and file of the Society. Your President is happy to say that no request that he made for aid and assistance in this work from any member of the Medical Society was denied; in fact, the loyalty and the willingness of each member to do his part were the most encouraging phases in securing this legislation. This accomplishment, I hope in future years will be an inspiration to our Fellows.

It is my pleasure also to say that on the part of the members of the Medical Society no harsh or acrimonious words were used in securing this legislation; in fact, your officers believe they have brought about between the Society and the members of the Legislature an era of goodwill and proper understanding.

Allow me to pause to emphasize two facts. The Massachusetts Medical Society from its very beginning in 1781 has stood for high standards in medical education and practice. Secondly, it has not deviated in the least from that standard, nor broken its faith in dealing with the people under its charter. One of the requirements under the charter given to the Society in 1781 was this; that every person who presented himself for membership in the Massachusetts Medical Society was obliged to take an examination under the supervision of the censors. The same rule still prevails. Until 1894, anyone might set himself up as a practitioner of medicine in Massachusetts, but not everyone would be allowed to join the Massachusetts Medical Society unless he proved himself fit by passing a proper examination. From 1781 until 1894, the only guarantee of good medical practice the people of Massachusetts had was that furnished by the members of the Massachusetts Medical Society. For 113 years this Society was a guarantee that its members were fit to give adequate medical service to the community. We have not changed our ideals or our standards. We pray to God we never shall.

One of the most important works of the Society has been undertaken by the Committee on Public Relations. This Committee has had many meetings during the year. The attendance of the members has been quite unusual. I think it has been about 80 per cent.

I wish to call your attention especially to the work of the Subcommittee on Social Insurance, of which Dr. M. A. Tighe of Lowell has been Chairman. Under Dr. Tighe's leadership, local committees, whose work is to bring before the people of Massachusetts the matter of social insurance, have been formed. Many meetings before lay bodies and medical societies have taken place throughout the Commonwealth. Lay clubs have received your speakers with great consideration. Newspapers have given space and favorable reports in towns and cities where these talks have taken place. It remains for the Society itself to carry on this great work of education. The success of this campaign of education lies squarely on the individual members of the Society. Its responsibility cannot be dodged. Your President believes that if the people of Massachusetts are made thoroughly acquainted with the origin, the aims and the objects of social security as it affects them and their medical advisers with all its implications, there will be only one answer and that answer will be that the people of Massachusetts will reject lay and political domination of the medical profession.

Under the Chairmanship of Dr. E. L. Hunt of Worcester, a partial survey of the adequacy of medical care has been made. Dr. Hunt and his Committee have worked assiduously. Their survey indicates that the study should be carried farther. The reports of these two Committees have been published in the *Journal* and merit your serious consideration.

Many conferences have been had, although informal, with representatives of insurance companies. It has been the special endeavor of Dr. Blaisdell of the subcommittee on insurance to bring about an understanding by which the rights of the physician shall be guaranteed not only under the Workmen's Compensation Law but also under the Compulsory Automobile Insurance Act. Both these questions involve many complications. I would bespeak for the Committee your confidence and patience and your support if called upon to give it.

Other subcommittees of the Public Relations Committee have been doing excellent work. The abuse of clinics has been under the consideration of the subcommittee, presided over by your Vice-President, Dr. Frothingham. This Committee has also had to do with the matter of immunization. The Committee has submitted a plan which appeared in the *Journal* of March 12, 1936, page 524.

On November 27, the Society gave a reception to Dr. James S. McLester, President of the American Medical Association, and Dr. J. Tate Mason, President-Elect of the American Medical Association, at the Harvard Club in Boston. This meeting was attended by the Executive Officers, by members of standing committees and by the Presidents and Secretaries of the District Societies. The good results of this meeting will be shown in the future.

According to the custom of the Society, the President has made a visit to sixteen of the eighteen District Societies. There was a large attendance at each of these meetings. It was stated by those in position to know that all these meetings had increased attendance and some had at least double the attendance of former occasions of a similar nature. The President desires to thank all for the courtesies that have been extended to him. Everywhere throughout the State he has found co-operation. The manifest and enthusiastic interest on

the part of the members has been an inspiration to him in carrying out the work of the Society. It has made his work lighter and his burden not heavy. There have been most cordial relations between the President and the members of the standing committees. There has been willing co-operation on the part of all officers and committees. The Editor of the *Journal* has been ready and willing at all times to give his assistance in furthering the good work of our organization.

May I also pause to call your attention to the work of the Committee of Arrangements. It has done a good work in co-operation with the excellent local committee of the medical fraternity of Springfield as you have found out in your visit to the scientific and business exhibits that have been arranged under their supervision. The social program, which has been arranged for your entertainment by the Women's Auxiliary Committee of Springfield, merits our sincere thanks.

May I also call your attention to the good work of the Secretary, Dr. Begg. He has been a wonderful assistant to the President. Graciously he has been ever ready to respond at any hour of the day to any request made by the President. I will pause here and ask you to rise in recognition of the ability, the loyalty and the good work of the Secretary.

I also wish to mention the work of the Committee on Postgraduate Instruction. Postgraduate instruction has been carried on in this state now for three years. The attendance during the past year has not been so large as that of the two former years. On the whole I think it is a most interesting and effective way of furnishing, perhaps indirectly, an adequate and proper medical service to the community. Every member should take a personal interest in the matter of postgraduate instruction. As your President sees it, this activity is going to be one of the most potent factors in convincing the people of Massachusetts that their medical society is ready at all times to give adequate medical service. But the accomplishment of this adequate medical service cannot be attained unless every member of the Society takes an active interest in the cause. Regardless of your age and experience you may learn much from the excellent program which the Committee on Postgraduate Instruction furnishes. It has been said that the people of Massachusetts should be particularly informed about this activity of your Society and further there is no similar organization for postgraduate instruction existing in any other state.

The next year will present to you many medical problems. Besides the question of medical economics, there also looms the question of relationship of our Medical Society with the public health service. It will be the endeavor of your President to co-operate so far as it is possible with all public health authorities in the domain of public health, always with the idea of preserving the rights and privileges of organized medicine, and at the same time to recognize that public health has its field with its rights, responsibilities and privileges. I see no reason why both organized medicine and public health authorities should not walk hand in hand with the dominant idea in the minds of both; the health of the people of the Commonwealth.

At 1:00 p. m. the President introduced the Orator, Dr. Reginald Fitz. He stated that Dr. Fitz needed no introduction but that he took delight in presenting him because of the great debt that he owed Dr. Fitz's father who was his teacher in pathology. He spoke feelingly of the character and ability of the elder Dr. Fitz and stated that in his opinion he was one of the greatest pathologists that medicine has produced. It was with pleasure, therefore, he presented the son, Dr. Fitz, who proceeded to deliver the Annual Discourse.

The meeting adjourned at 1:50 p. m.

Following the Annual Discourse, luncheon was served in the Main Dining Room. The total registered attendance for the three-day meeting was 909.

ALEXANDER S. BEGG,
Secretary.

The Commercial Exhibits were well arranged and were well attended by the Fellows, and great interest was shown in the excellent series of Scientific Exhibits which had been arranged by the Committee.

Much credit for the social calendar for the ladies must go to the Committee on Ladies' Program which was made up as follows:

Chairman, Dr. W. A. R. Chapin

Co-Chairman, Mrs. James A. Seaman

Mrs. T. S. Bacon, Mrs. R. S. Benner, Mrs. J. M. Birnie, Mrs. L. D. Chapin, Mrs. J. B. Comins, Mrs. G. B. Corcoran, Mrs. J. E. Dwyer, Mrs. F. Hagler, Mrs. M. F. Hosmer, Mrs. C. F. Lynch, Mrs. A. G. Rice, Mrs. F. B. Sweet.

Under the auspices of this group the following program was provided:

MONDAY, JUNE 8:

3 p. m. - 5 p. m.—Tea at the George Walter Vincent Smith Art Gallery, 222 State Street, Springfield.

8:15 p. m.—Shattuck Lecture by Dr. George Blumer, New Haven. Ballroom, Hotel Kimball.

TUESDAY, JUNE 9:

10 a. m.—Tour of surrounding country, including college towns of Amherst, Northampton and South Hadley.

Noon—Luncheon at the Springfield Country Club, to meet the wives of the Presidents of the District Medical Societies.

Golf Tournament at Springfield Country Club after luncheon.

Tour of Springfield museums for those not playing golf.

7:00 p. m.—Dinner at Hotel Kimball. (Followed by entertainment and dancing.)

WEDNESDAY, JUNE 10:

10 a. m.—Visit to Springfield hospitals.

ADMISSIONS RECORDED FROM JUNE 5, 1935 TO JUNE 10, 1936

This list appeared in the issue of August 6 on page 259.

DEATHS REPORTED FROM JUNE 5, 1935 TO JUNE 10, 1936

Admitted	Name	Place of Death	Date of Death	Age
1907	Adler, Herman Morris	Boston	December 7, 1935	59
1926	Bacon, John Lowell	Framingham	November 21, 1935	59
1878	Bacon, Jonas Edward	Brockton	July 31, 1935	82
1882	†Baker, Harry Beecher	Taunton	June 7, 1936	77
1888	Baldwin, Frederick William	Beverly	March 7, 1936	74
1907	Ballou, Ambrose Roche	Dorchester	December 4, 1935	54
1917	Barnes, Frederick Rigby	Fall River	July 18, 1935	46
1908	Barry, James Henry	Roxbury	September 23, 1935	65
1895	Bateman, Frank E.	Somerville	April 5, 1936	69
1896	†Berry, John Cutting	Worcester	February 8, 1936	89
1878	†Bixby, Josiah Peet	North Woburn	September 2, 1935	80
1928	Bongiorno, Felice	Waltham	February 20, 1936	42
1898	Brown, Edward Wells	Northampton	October 25, 1935	64
1901	Bryant, Frederick	Hull	July 29, 1935	64
1911	Bryant, John	Brookline	September 19, 1935	55
1899	Buck, Maurice Allen	Billerica	November 19, 1935	61
1916	Butler, David Mathew	Cambridge	August 1, 1935	45
1886	Cahill, Charles Sumner	Cambridge	December 10, 1935	71
1891	Clancy, William Henry	Cambridge	September 21, 1935	70
1892	Clapp, Frank Horace	North Grafton	February 26, 1936	74
1895	†Cobb, Carolus Melville	Lynn	January 2, 1936	74
1898	Cronin, Thomas Joseph	Worcester	September 10, 1935	70
1905	Curran, Simon Francis	Dorchester	May 19, 1936	61
1887	†Curtis, Francis George	Ashfield	April 7, 1936	78
1877	†Davenport, Francis Henry	Boston	April 9, 1936	84
1924	Donahoe, Robert Abbott	Lowell	August 20, 1935	43
1914	Dowling, John Joseph	Boston	July 10, 1935	65
1919	Ellis, Ralph Warner	Worcester	March 3, 1936	44
1912	Fallon, Joseph Francis	Brookline	October 14, 1935	53
1895	Fosgate, Elmer Gilman	Ashburnham	June 8, 1935	75
1910	Friedman, Nathan	Dorchester	October 3, 1935	51
1891	†Gale, George Washington	Saugus	April 21, 1936	99
1881	†Goodell, George Zina	Salem	September 9, 1935	76
1928	Goodwin, Edward Everett	Boston	November 6, 1935	71
1921	Guibord, Alberta Sylvia Boomhower	Waban	May 27, 1936	62
1924	Hale, Edward Preston	Lenox	September 9, 1935	75
1896	Hanley, Francis Joseph	Whitman	August 2, 1935	66
1914	Haskins, Frank Eugene	Boston	May 24, 1936	61
1885	†Herrick, Joseph Thomas	Springfield	June 2, 1935	76
1909	Howland, Charles A.	Schenectady, N. Y.	December 28, 1935	58
1906	Hurley, Edward Daniel	South Boston	June 8, 1936	54
1892	†Jackson, Charles William	Springfield	August 21, 1935	83
1898	†Jones, Mary Scott	Boston	June 16, 1935	81
1922	Klein, Alvin Walter	Stockbridge	September 27, 1935	67
1884	†Knowles, William Fletcher	Brookline	February 12, 1936	74
1894	†Konikow, Moses J.	Brookline	April 26, 1936	68
1907	Lawlor, Edward Francis	Lawrence	October 6, 1935	58
1910	L'Esperance, Oscar Raöul Talon	Centerville	July 15, 1935	57
1865	†Macdonald, William Lewis	Malden	September 24, 1935	101
1915	Mahoney, Francis X.	Boston	January 14, 1936	64
1907	Massé, John Baptiste	Lawrence	October 15, 1935	59
1898	May, John Shepard	Jamaica Plain	October 10, 1935	65
1899	McAllister, Frederick Danforth	Lawrence	March 17, 1936	63
1894	McEvoy, Thomas Edward	Worcester	March 28, 1936	76
1912	McGraw, Andrew J.	Taunton	April 20, 1936	54
1902	McPherson, Ross	New York, N. Y.	August 16, 1935	59
1898	McQuaid, Thomas Bernard	Webster	September 19, 1935	75
1912	Mindlin, Carl	Haverhill	August 20, 1935	51
1891	†Morris, George Patrick	South Boston	January 4, 1936	75
1907	†Morrison, Archibald Benjamin	Brookline	May 3, 1936	73
1913	Murphy, John Joseph	North Conway, N. H.	July 8, 1935	49
1898	Murphy, Timothy Joseph	Roxbury	January 1, 1936	69
1920	Nicholson, Minnie J.	Haverhill	August 31, 1935	59
1886	†Norton, Eben Carver	North Chatham	April 11, 1936	79
1893	O'Connor, James B.	Lowell	December 22, 1935	67
1907	†Packard, Horace	Stoughton	January 24, 1936	80
1928	Packer, George William	Fall River	March 4, 1936	56
1892	†Phelps, Olney Windsor	Warren	December 2, 1935	87
1928	Pollano, Walter A.	Lawrence	June 25, 1935	56
1925	Reynolds, John Timothy	Boston	April 28, 1936	54
1898	Ring, Arthur Hallam	Arlington Heights	June 25, 1935	61
1897	Roberts, Frederick Alpha	Pittsfield	November 30, 1935	72
1893	†Robinson, William Henry	Jamaica Plain	September 28, 1935	67

1904	Shaw, John Port	Brockton	June	5, 1935	76
1929	Sisson, Mitchell	Boston	June	1, 1936	48
1882	†Smith, George Carroll	Brookline	February	8, 1936	82
1911	Smyth, Duncan Campbell	Brookline	June	11, 1935	50
1928	Spalding, Harry Osgood	Boston	May	10, 1936	65
1885	Swan, William Donnison	Annisquam	June	25, 1935	76
1889	Thomas, John Jenks	Boston	July	17, 1935	74
1901	Trainor, John Brett	Fall River	September	20, 1935	67
1897	Upton, Charles Louis	Greenfield	May	26, 1936	65
1870	Wheeler, Leonard	Worcester	October	2, 1935	90
1922	Wight, Freeman Clark	Boston	August	4, 1935	63
1897	†Withee, Frederick Elmarian	Newton Highlands	June	30, 1935	71

OFFICERS OF THE MASSACHUSETTS MEDICAL SOCIETY FOR 1936-1937

ELECTED BY THE COUNCIL, JUNE 9, 1936

President: Charles E. Mongan, Somerville, 24 Central Street.

Vice-President: Channing Frothingham, Boston. Office, Jamaica Plain, 1153 Centre Street.

Secretary: Alexander S. Begg, West Roxbury. Office, Boston, 8 Fenway.

Treasurer: Charles S. Butler, Boston, 257 Newbury Street.

Orator: Joseph W. O'Connor, Worcester, 36 Pleasant Street.

STANDING COMMITTEES FOR 1936-1937

COMMITTEE OF ARRANGEMENTS

Horatio Rogers, *Chairman;* W. S. Burrage, R. P. Stetson, Augustus Thorndike, Jr., E. J. O'Brien, Jr.

COMMITTEE ON PUBLICATIONS

R. I. Lee, *Chairman;* R. B. Osgood, R. M. Smith, F. H. Lahey, J. P. O'Hare.

COMMITTEE ON MEMBERSHIP AND FINANCE

D. N. Blakely, *Chairman;* G. C. Caner, J. E. Fish, H. F. Newton, H. Q. Gallupe.

COMMITTEE ON ETHICS AND DISCIPLINE

David Cheever, *Chairman;* A. C. Smith, R. L. DeNormandie, C. J. Kickham, R. R. Stratton.

COMMITTEE ON MEDICAL EDUCATION AND MEDICAL DIPLOMAS

Reginald Fitz, *Chairman;* C. H. Lawrence, C. A. Sparrow, E. S. Calderwood, A. W. Stearns.

COMMITTEE ON STATE AND NATIONAL LEGISLATION

C. E. Mongan, *Chairman;* F. E. Jones, A. W. Marsh, A. S. Begg, D. L. Lionberger.

COMMITTEE ON PUBLIC HEALTH

R. P. Watkins, *Chairman;* Gerald Hoeffel, G. D. Henderson, S. C. Dalrymple, H. L. Lombard.

COMMITTEE ON MALPRACTICE DEFENSE

F. G. Balch, *Chairman;* E. D. Gardner, F. B. Sweet, A. W. Allen, W. R. Morrison.

COMMITTEE ON PERMANENT HOME

R. B. Greenough, *Chairman;* C. G. Mixter, J. M. Birnie, C. S. Butler, E. C. Miller.

SPECIAL COMMITTEES FOR 1936-1937

COMMITTEE ON CANCER

R. B. Greenough, *Chairman;* F. G. Balch, E. M. Daland, P. E. Truesdale, C. C. Simmons.

REPRESENTATIVES TO THE MASSACHUSETTS CENTRAL HEALTH COUNCIL

On Administrative Board
R. P. Watkins.

District Representatives
Eastern: E. P. Joslin, A. W. Dudley.
Northeastern: M. A. Tighe, F. W. Snow.
Southeastern: W. D. Kinney.
Central: G. D. Henderson, E. C. Miller.
Western: H. J. Downey, R. J. Carpenter.

COMMITTEE ON PUBLIC EDUCATION

(A subcommittee of the Standing Committee on Public Health)

R. P. Watkins, G. R. Minot, W. H. Robey, F. J. Cotton, F. C. Irving, R. M. Smith, E. H. Place, C. C. Simmons, J. H. Pratt, H. W. Stevens, J. B. Ayer, H. P. Mosher, R. B. Osgood, F. R. Ober, E. P. Joslin, J. D. Barney, H. L. Lombard.

COMMITTEE ON POSTGRADUATE INSTRUCTION

Frank R. Ober, Boston, *Chairman;* F. Dennette Adams, Boston; Roy Morgan, Westfield; John M. Birnie, Springfield; Harold L. Higgins, Boston; Joseph W. O'Connor, Worcester; Charles W. Blackett, Jr., Newtonville; Dwight O'Hara, Waltham; Reginald Fitz, Boston; Alexander S. Begg, West Roxbury; A. Warren Stearns, Billerica; Robert B. Greenough, Boston; Walter P. Bowers, Clinton; Henry D. Chadwick, Boston; Winfred Overholser, Boston; C. Macfie Campbell, Roxbury; Lincoln Davis, Boston; Leroy E. Parkins, Boston, *Secretary.*

COMMITTEE ON PHYSICAL THERAPY

F. P. Lowry, *Chairman;* R. B. Osgood, G. R. Minot.

COMMITTEE ON PUBLIC RELATIONS

One member appointed yearly by each District Medical Society.

The President of the parent society, Charles E. Mongan, is chairman.

Barnstable District Medical Society
Merrill E. Champion, North Harwich.

Berkshire District Medical Society
P. J. Sullivan, Dalton, 46 Curtis Avenue.

Bristol North District Medical Society
Francis H. Dunbar, Mansfield. P. O. address, Boston, 43 Bay State Road.

Bristol South District Medical Society
Joseph A. Barré, Fall River, 1555 Pleasant Street.

Essex North District Medical Society
Elmer S. Bagnall, Groveland, 281 Main Street. Secretary.

Essex South District Medical Society
John Joseph Egan, Jr., Gloucester, 52 Pleasant Street.

Franklin District Medical Society
Halbert G. Stetson, Greenfield, 39 Federal Street.

Hampden District Medical Society
Patrick E. Gear, Holyoke, 630 Dwight Street.

Hampshire District Medical Society
Francis E. O'Brien, Haydenville, Hampshire County Sanatorium.

Middlesex East District Medical Society
J. Harper Blaisdell, Winchester. Office Boston, 45 Bay State Road.

Middlesex North District Medical Society
Michael A. Tighe, Lowell, 9 Central Street.

Middlesex South District Medical Society
David C. Dow, Cambridge, 1587 Massachusetts Avenue.

Norfolk District Medical Society
Walter A. Lane, Milton, 173 School Street. Vice-Chairman.

Norfolk South District Medical Society
William G. Curtis, Wollaston, 10 Grand View Avenue.

Plymouth District Medical Society
Thomas H. McCarthy, Brockton, 142 Main Street.

Suffolk District Medical Society
Channing Frothingham, Boston. Office Jamaica Plain, 1153 Centre Street.

Worcester District Medical Society
Ernest L. Hunt, Worcester, 28 Pleasant Street.

Worcester North District Medical Society
Harry R. Nye, Leominster, 19 Lancaster Street.

DELEGATES AND ALTERNATES TO HOUSE OF DELEGATES—AMERICAN MEDICAL ASSOCIATION

Delegates	Alternates
June 1, 1935 to June 1, 1937	
Richard H. Miller, Boston	Cadis Phipps, Brookline
Edmond F. Cody, New Bedford	Philemon E. Truesdale, Fall River
Reginald Fitz, Boston	George P. Reynolds, Boston
June 1, 1936 to June 1, 1938	
Charles E. Mongan, Somerville	Arthur W. Marsh, Worcester
Michael A. Tighe, Lowell	Walter G. Phippen, Salem
Walter A. Lane, Milton	Paul P. Henson, Hyannis

COUNCILORS—1936-1937

Elected by the District Medical Societies at Their Annual Meetings, April 15 to May 15, 1936

Note:—The initials M. N. C. following the name of a Councilor indicate that he is a member of the Nominating Committee. V. P. indicates that a member is a Councilor by virtue of his office as President of a district society and so Vice-President of the general society. C. indicates that he is chairman of a standing committee, Sec. that he is secretary of his District Society.

Barnstable

M. E. Champion, North Harwich, V. P.
S. M. Beale, Sandwich.
W. D. Kinney, Osterville, M. N. C.
J. I. B. Vail, Hyannis, 155 Main St., Sec.

Berkshire

W. T. Frawley, Pittsfield, 184 North St., V. P.
R. J. Carpenter, North Adams, 85 Main St.
I. S. F. Dodd, Pittsfield, 34 Fenn St.
H. J. Downey, Pittsfield, 184 North St., Sec., M. N. C.
G. P. Hunt, Pittsfield, 34 Fenn St.
W. P. Kelly, Pittsfield, 61 Union St.
T. H. Nelligan, Pittsfield, 184 North St.
G. H. Thompson, Pittsfield, 74 North St.

Bristol North

L. E. Butler, Taunton, 148 High St., V. P.
W. H. Allen, Mansfield, 70 North Main St., M. N. C.
A. R. Crandell, Taunton, 48 Church Green.
C. B. Kingsbury, Taunton, 63 Prospect St., Sec.
F. V. Murphy, Attleboro, 51 Bank St.

Bristol South

J. M. Bonnar, New Bedford, 90 Hillman St., V. P.
J. A. Barré, Fall River, 1555 Pleasant St.
R. H. Baxter, Marion, 6 South St.
G. W. Blood, Fall River, 82 New Boston Rd.
R. B. Butler, Fall River, 278 North Main St.
E. F. Cody, New Bedford, 105 South Sixth St., M. N. C.
E. D. Gardner, New Bedford, 150 Cottage St.
S. V. Merritt, Fall River, 297 Osborn St.
Charles Shanks, New Bedford, 645 Kempton St., Sec.
I. N. Tilden, Mattapoisett, Barstow St.
C. C. Tripp, New Bedford, 416 County St.
P. E. Truesdale, Fall River, 151 Rock St.

Essex North

C. F. Warren, Amesbury, 1 School St., V. P.
E. S. Bagnall, Groveland, 281 Main St., Sec.
R. V. Baketel, Methuen, 7 Hampshire St.
C. S. Benson, Haverhill, 30 Summer St.
J. F. Burnham, Lawrence, 567 Haverhill St.
Z. W. Colson, Lawrence, 301 Essex St.
H. F. Dearborn, Lawrence, 193 Garden St.
H. R. Kurth, Lawrence, 477 Essex St.
L. C. Peirce, Newburyport, 279 High St.
G. L. Richardson, Haverhill, 117 Emerson St.
F. W. Snow, Newburyport, 24 Essex St.
W. D. Walker, Andover, 121 Main St., M. N. C.

Essex South

C. A. Bonner, Hathorne, Danvers State Hospital, V. P.
N. P. Breed, Lynn, 9 Washington Square.
Hanford Carvell, Gloucester, 1038 Washington St., M. N. C.
J. G. Corcoran, Hamilton, Main St.
C. L. Curtis, Salem, 101 Federal St.
C. F. Deering, Danvers, 38 Elm St.
J. F. Donaldson, Salem, 32 Lynde St.
R. E. Foss, Peabody, 125 Main St.
J. F. Jordan, Peabody, 76 Lynn St.
B. B. Mansfield, Ipswich, 4 Greene St.
A. E. Parkhurst, Beverly, 163 Cabot St.
O. S. Pettingill, Middleton, Essex County Sanatorium.
C. H. Phillips, Beverly, 11 Broadway.
W. G. Phippen, Salem, 31 Chestnut St.
R. E. Stone, Beverly, 88 Lothrop Boulevard, Sec.
J. W. Trask, Lynn, 90 Ocean St.

Franklin

W. J. Pelletier, Turners Falls, 171 Avenue A., V. P.
H. M. Kemp, Greenfield, 42 Franklin St., M. N. C.
Charles Moline, Sunderland, Office South Deerfield, 120 Main St., Sec.

H. G. Stetson, Greenfield, 39 Federal St., Ex-Pres.
A. H. Wright, Northfield, Main St.

HAMPDEN

P. E. Gear, Holyoke, 630 Dwight St., V. P.
F. H. Allen, Holyoke, 16 Fairfield Ave.
T. S. Bacon, Springfield, 69 Maple St.
E. P. Bagg, Jr., Holyoke, 207 Elm St.
J. M. Birnie, Springfield, 14 Chestnut St., Ex-Pres.
J. J. Carroll, Holyoke, 192 Chestnut St.
L. D. Chapin, Springfield, 20 Maple St.
W. A. R. Chapin, Springfield, 121 Chestnut St.
J. L. Chereskin, Longmeadow, Office Springfield, 333 Bridge St.
A. J. Douglas, Westfield, 93 Elm St.
Frederic Hagler, Springfield, 20 Maple St.
G. D. Henderson, Holyoke, 312 Maple St.
E. A. Knowlton, Holyoke, 207 Elm St.
M. W. Pearson, Ware, 19 Pleasant St.
A. G. Rice, Springfield, 33 School St.
G. L. Schadt, Springfield, 44 Chestnut St., M. N. C.
H. L. Smith, Springfield, 249 Union St., Sec.
G. L. Steele, Springfield, 20 Maple St.

HAMPSHIRE

Ward Young, Northampton, 78 Main St., V. P.
A. J. Bonneville, Hatfield, 43 Main St.
J. G. Hanson, Northampton, 219 Elm St., M. N. C.
F. E. O'Brien, Haydenville, Hampshire County Sanatorium, Sec.

MIDDLESEX EAST

J. H. Kerrigan, Stoneham, 481 Main St., V. P.
J. H. Blaisdell, Winchester, Office Boston, 45 Bay State Rd.
Richard Dutton, Wakefield, 33 Avon St.
E. M. Halligan, Reading, 3 Salem St.
K. L. Maclachlan, Melrose, 1 Bellevue Ave., Sec.
R. R. Stratton, Melrose, 538 Lynn Fells Parkway, M. N. C.
F. O. West, Woburn, 60 Pleasant St.

MIDDLESEX NORTH

F. P. Murphy, Lowell, 175 Central St., V. P.
M. L. Alling, Lowell, 9 Central St.
D. J. Ellison, Lowell, 8 Merrimack St.
A. R. Gardner, Lowell, 16 Shattuck St.
G. A. Leahey, Lowell, 128 Merrimack St.
T. A. Stamas, Lowell, 226 Central St., Sec.
E. O. Tabor, Lowell, 16 Shattuck St., M. N. C.
M. A. Tighe, Lowell, 9 Central St.

MIDDLESEX SOUTH

S. H. Remick, Waltham, 775 Trapelo Rd., V. P.
C. F. Atwood, Arlington, 821 Massachusetts Ave.
E. W. Barron, Malden, Office Boston, 20 Ash St.
C. E. Barstow, Arlington, 754 Massachusetts Ave.
C. F. K. Bean, West Medford, 51 Harvard Ave.
E. H. Bigelow, Framingham Center, 31 Pleasant St., Ex-Pres.
G. F. H. Bowers, Newton Highlands, 156 Woodward St.
C. O. Chase, Watertown, 6 Patten St.
F. R. Clark, Newtonville, 221 Walnut St.
B. F. Conley, Malden, 51 Main St.
A. C. Cummings, Newton, 447 Center St.
D. F. Cummings, Natick, 12 East Central St.
H. F. Day, Cambridge, Office Boston, 412 Beacon St.
J. E. Dodd, Framingham, 141 Franklin St.
D. C. Dow, Cambridge, 1587 Massachusetts Ave.
A. W. Dudley, Cambridge, 1740 Massachusetts Ave., M. N. C.
H. Q. Gallupe, Waltham, 751 Main St.
W. G. Grandison, Charlestown, 65 High St.
F. A. Higginbotham, Watertown, 112 Mt. Auburn St.
N. M. Hunter, Hudson, 20 Lincoln St.
C. M. Hutchinson, Cambridge, 47 Garden St.
A. M. Jackson, Everett, 512 Broadway.
A. A. Levi, Cambridge, Office Boston, 485 Commonwealth Ave., Sec.
F. P. Lowry, Newton, 313 Washington St.
F. L. MacDonald, Waltham, Office Boston, 220 Marlborough St.
R. A. McCarty, Waltham, 876A Main St.
L. W. McGuire, Malden, Office Boston, 375 Commonwealth Ave.
J. A. McLean, West Somerville, 16 Curtis St.
Edward Mellus, Newton, 15 Clements Rd.
C. E. Mongan, Somerville, 24 Central St., Pres.
F. L. Morse, Somerville, 78 Highland Ave.
J. P. Nelligan, Cambridge, 2336 Massachusetts Ave.
E. J. O'Brien, Jr., Brighton, Office Boston, 270 Commonwealth Ave.
Dwight O'Hara, Waltham, Office Boston, 5 Bay State Rd.
C. T. Porter, Waltham, Office Boston, 520 Commonwealth Ave.
W. D. Reid, Newton, Office Boston, 510 Commonwealth Ave.
T. E. Reilly, Marlborough, 6 Newton St.
E. S. A. Robinson, Newton Center, Office Jamaica Plain, 375 South St.
E. J. Sawyer, Newton, 488 Center St.
M. J. Schlesinger, Brighton, 22 Commonwealth Terrace.
E. F. Sewall, Somerville, 380 Broadway.
D. W. Sherwood, Newtonville, Office Boston, 66 Commonwealth Ave.
F. G. Smith, Somerville, 145 Highland Ave.
H. P. Stevens, Cambridge, 1911 Massachusetts Ave.
H. W. Thayer, Newtonville, 355 Walnut St.
Fresenius Van Nüys, Weston, Boston Post Rd.
R. H. Wells, Lexington, 1430 Massachusetts Ave.
M. W. White, Somerville, 21 Walnut St.
R. K. Whiton, Concord, 7 Sudbury Rd.
W. S. Whittemore, Cambridge, 3 Concord Ave.
Alfred Worcester, Waltham, 314 Bacon St., Ex-Pres.

NORFOLK

Maurice Gerstein, Roxbury, Office Boston, 483 Beacon St., V. P.
K. R. Bailey, Jamaica Plain, Office Boston, 483 Beacon St.
F. G. Balch, Jamaica Plain, Office Boston, 279 Clarendon St., C.
J. R. Barry, West Roxbury, 1857 Center St.
H. G. Batchelder, Dedham, Office Boston, 510 Commonwealth Ave.
A. S. Begg, West Roxbury, Office Boston, 80 East Concord St., Sec.
D. D. Berlin, Brookline, Office Boston, 68 Bay State Rd.
M. G. Berlin, Brookline, Office Boston, 68 Bay State Rd.
D. N. Blakely, Brookline, Office Boston, 87 Milk St., C.
H. K. Boutwell, Brookline, 15 Green St.
F. S. Cruickshank, Brookline, 1247 Beacon St., Sec.
S. F. Curran,* Dorchester, 104 Norfolk St.
R. A. Draper, Dorchester, 1107 Washington St.
D. G. Eldridge, Dorchester, 15 Monadnock St.
H. M. Emmons, West Roxbury, Office Boston, 354 Commonwealth Ave.

*Deceased.

C. B. Faunce, Jr., Jamaica Plain, Office Boston, 390 Commonwealth Ave.
I. A. Finkelstein, Dorchester, 1095 Blue Hill Ave.
J. F. Ford, Roslindale, 8 Walter St.
C. S. Francis, Brookline, 76 High St.
Morris Frank, Roxbury, 173 Humboldt Ave.
L. M. Freedman, Brookline, Office Boston, 475 Commonwealth Ave.
W. A. Griffin, Sharon, 28 South Main St., M. N. C.
J. B. Hall, Roxbury, 60 Windsor St.
L. F. Johnson, Norwood, Office Boston, 15 Bay State Rd.
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FUNDAMENTALS IN THE CANCER PROBLEM*

BY GRANTLEY W. TAYLOR, M.D.†

IT is obvious to every student of the cancer problem that we do not avail ourselves fully of our resources in combating the disease; and that the major defects of our current practice are delay and improper treatment. A large responsibility for these defects must be attributed to the general practitioners, both in relation to their management of individual patients, and in relation to their educational function toward the population in general.

In cases with symptoms of early cancer, delays on the part of the patient, in failure to report promptly to the physician due to ignorance, fear, or carelessness, must be reduced by a broad public educational program in which the local practitioner must play a major part. Delays and improper treatment after the patient has come under the care of his physician are in a large measure avoidable, and become progressively less pardonable as our resources for diagnosis and proper treatment are increased and made more readily available throughout the state.

In the course of observation of patients coming to cancer clinics we have been interested in analyzing the factors contributing to initial improper management of the cancer patient. These factors, while manifested in myriad forms, may be grouped into three general categories; errors in diagnosis, errors in estimate of the extent of the disease, and errors in treatment. In the hope of avoiding such errors, it seems desirable to formulate certain simple questions for the practitioner to answer. In a conscientious attempt to answer the questions, the physician may be able to avoid the errors and delays with which he might otherwise be charged.

1. What is the disease?

It is hardly necessary to stress the importance of diagnosis, and yet the clinics and hospitals bear witness with hundreds of cases that patients have been treated often for months before a correct diagnosis was established. Often the error is due to the physician's carelessness, or to an incomplete examination of the patient. Large numbers of patients with carcinoma of the rectum have undergone treatment for hemorrhoids, without ever having had a digital rectal examination. Patients with uterine cancers will have used prescribed tonics and douches often for months before a vaginal examination has been carried out. Powders prescribed for indigestion almost routinely preceded gastro-intestinal x-ray examination in patients with carcinoma of the stomach. Even when the lesion is obvious, the nature of it is not even suspected by the physician who treats carcinoma of the skin with ointments, or carcinoma of the tongue with a caustic pencil.

Sometimes the failure to establish early diagnosis may be due to lack of local facilities. Cystoscopic examinations, certain x-ray procedures, frozen section pathologic facilities, blood chemistry studies,—these and many others may not be available in many communities. Often the resources of a fully equipped hospital are unable to establish beyond doubt the presence or absence of carcinoma. Instances of this sort emphasize the fact that it would be too much to expect of the physician that he should establish the positive diagnosis unaided. However, he should be responsible for suspecting the diagnosis of cancer, and he should carry through with the study, if necessary with the help of consultants or a cancer clinic, until a definite diagnosis has been reached.

Perhaps we should revise our first question to read "Can this patient have a cancer?" I venture to suggest that if each physician should ask himself this question every time he sees a new patient, or even an old patient, a great many carcinomas would be brought to light considerably earlier than they would have been otherwise. A valuable by-product of such an inquiry, diligently pursued, would be the establishment of accurate diagnosis of a great many benign conditions, laying the basis in most cases for the institution of rational therapy. Indeed, at places like the Pondville Hospital, we effectively make use of a modification of this question by asking ourselves "Are we certain that this patient has a cancer?" The result of such a question has been the discovery and salvage of a considerable number of benign remediable conditions masquerading under the guise of incurable malignant disease.

2. Is the cancer in a curable stage?

Assuming that we have established a correct diagnosis of carcinoma, it is essential to any program of rational treatment that the extent of the disease be properly appraised. Careful search should be made for metastatic disease in the regional lymph nodes, liver, lungs, and skeleton, before a case should be submitted to radical operation. We see too many cases who have undergone extensive, mutilating, painful and expensive operations, let us say for carcinoma of the breast, when preoperative study would have revealed the presence of remote

*Read at the Annual Meeting of the Essex North District Medical Society at Salem on May 6, 1936.

†Taylor, Grantley W.—Assistant Surgeon, Massachusetts General Hospital. For record and address of author see "This Week's Issue," page 408.

metastatic disease which would have made the operation useless. Such operations are not only unnecessary, but do much in a community to contribute to the feeling among the laymen that carcinoma is invariably fatal, and that surgery for the condition is useless. Radical treatment should be made to be successful as often as possible, and in this way it may help to eradicate the general attitude of despair.

On the other hand, many surgeons are only too willing to class a condition as inoperable, and by temporizing or palliating, valuable time is often lost to the patient.

These aspects of the cancer problem touch the general practitioner closely. All too often he is himself seized with the general attitude of despair. He withholds from his patient with carcinoma of the stomach the possible benefit of exploration; he submits his patient with advanced breast carcinoma to operation, and then shares with the family the disappointment of recurrence within a few months; he acquiesces in a palliative colostomy because his local surgical consultant has had no experience in the radical operation for rectal carcinoma.

Again here, perhaps, it is too much to ask of the family physician that he should be qualified to determine the exact extent of the disease, and its curability. Again he is justly open to reproach if he fails to avail himself of the best advice he can secure in the individual case. His task is to interpret the consultant's advice to the patient and his family; to explain the necessity for preoperative studies to rule out metastatic disease; and to persuade the reluctant patient to undergo an operation which offers a prospect of cure.

3. What is the proper standard treatment?

The answer to this question obviously depends on an accurate answer to the second question, and so must be divided into two parts.

(a) The disease is curable:

Proper standard methods of treating various types of malignant disease have been fairly well established for many years. Controversies and debates may arise in regard to various types of carcinoma, but in general the principles remain constant. The periodical literature tends primarily to include discussions of these controversial points and hence much of what is written tends only to confuse the practitioner. The publications of tentative and experimental methods of treatment by research institutions not only present alternative procedures to the general surgeon, but also stimulate a desire to conduct individual experiments in the field of cancer therapy. It need hardly be pointed out that such experimentation should be almost entirely restricted to institutions which possess complete facilities for thorough studies, as well as a sufficient body of experience in standard procedures to offer an accurate control series. Many communities throughout the country have private cancer specialists, who have developed so-called therapeutic procedures quite at variance with standard practice, and who by virtue of publicity attract and mismanage large numbers of cancer patients. In the field of cancer especially, where careful end-result studies are necessary to permit appraisal of treatment, such heterodox methods are particularly likely to develop, and particularly difficult to curb.

But while many patients are lost by wilful disregard of usual methods of treatment, probably even more suffer from ignorance of these methods on the part of the general surgeon. Simple mastectomy for carcinoma still seems to be entirely adequate treatment to many surgeons. At the Pondville Hospital, we have a considerable number of patients with carcinoma of the cervix or uterine fundus who have been treated by supravaginal hysterectomy, even after the diagnosis had been accurately established by pathologic examination. Disregard of possible regional lymph node involvement is common among dermatologists and radiologists who undertake to treat carcinoma of the skin, lip, or buccal mucosa. Excessive conservation in excision of skin lesions, to avoid disfigurement, courts the disaster of early recurrence. Inadequate doses of radiation often cause temporary disappearance of obvious lesions, and lead to a premature cessation of treatment.

It is too much to expect the practitioner to be familiar with the procedures that constitute adequate standard treatment of carcinoma, although such familiarity is obligatory for the general surgeon who undertakes the treatment of cancer. The practitioner should know what men or institutions in his community are competent to carry out the proper treatment, and should see to it that his patients receive such treatment. Surgeons or radiologists without knowledge or experience in the proper procedures, or improperly equipped for carrying them out, should not undertake treatment of cancer. The first attempt at cure is the most likely to succeed; and we are under obligation to our patients to see that the attempt is properly made.

(b) The disease is incurable:

When our preliminary study has established the fact that the disease is incurable, or when because of poor general condition a radical operation is too formidable a procedure, the problem becomes one of palliation. We must at once decide what can be done to improve the patient's comfort during his remaining life. If the problem is viewed squarely in this way, much of what is now regarded as palliation

must be given up. Prolongation of life must not be sought unless at the same time the patient can be relieved of distressing symptoms. In general, incurable carcinoma cases are treated too vigorously, without bearing in mind that the objective is the relief of symptoms. Massive doses of radiation with their attendant distress should not be employed when smaller doses are just as effective.

Neurosurgical procedures, although they may appear to be radical in some instances, relieve pain more efficiently and with less distressing accessory effects than do large doses of morphine. Cleansing of wounds, irrigations, removal of sloughing masses of tumor, all conduce to the comfort of the patient and are too often neglected. The usefulness of palliative operations, such as tracheotomy, gastrostomy, cystotomy, or colostomy, should be appraised in regard to each individual patient. These operations should be undertaken not primarily to prolong life but for the relief of specific symptoms. In some instances indeed, radical operations are justified simply as palliative procedures—such as amputation of a limb with fungating sarcoma, even in the presence of lung metastases, or radical removal of the rectum in the presence of liver metastases.

Problems of palliation and of the care of the incurable cancer patient again come directly under the management of the family practitioner. If he will pause long enough to ask himself what the function of palliation is and how it can best be achieved, he can do much to relieve and comfort his patient.

In conclusion, the cancer problem involves research into the cause of the disease and into more effective methods of treatment. The general practitioner should not attempt to enter this field. The problem involves education of the general public in recognition of early symptoms, and in acceptance of regular and thorough examinations. In this education the practitioner should play a prominent part. The problem involves education of the general surgeon and radiologist in the proper standard procedures of diagnosis and treatment of cancer and in knowledge of the prognosis of various stages of the disease. In this field the family physician can contribute not a little by insistence upon competence in his consultants. Finally, the cancer problem involves the education of the general practitioner in suspecting or recognizing malignancy, and in knowing where to refer his problems for further diagnosis or treatment. He may be aided in his self-education in this field, by asking himself a few simple questions:

1. Is this cancer?
2. Is it curable?
3. If so, what is the treatment and who is qualified to carry it out?
4. If incurable, what is the purpose of palliation?

MASSACHUSETTS MEDICO-LEGAL SOCIETY

THE NEEDS FOR IMPROVEMENT IN MEDICOLEGAL INVESTIGATIONS*

BY THOMAS A. GONZALES, M.D.†

THE purpose of this presentation is to review certain fundamental principles which are vitally necessary for the proper conduct of an investigative medicolegal organization, to suggest certain changes which would react to the benefit of such an organization and to discuss the advantages of educational and financial relationships for the future development of legal medicine. Any expected improvement in the methods of medicolegal investigation depends largely upon these principles, changes and relationships and on the educational efforts of those who are engaged in teaching the specialty.

That there is need for improvement cannot be denied. This is especially noteworthy in the small communities and rural districts where the lack of laboratory facilities and other necessary aids increases the difficulties of the investigator to the extent that it is impossible to do good work. The situation is somewhat relieved in the medium-sized and large cities. Laboratory advantages are usually available and where there is no objection to their use, many of the ordinary procedures in histopathology and bacteriology may be carried out. The average hospital laboratory is generally equipped for this work if not for the more technical procedures. In a locality where there is a university with a medical department, conditions may be ideal provided the university is willing to co-operate. If it so happens that the institution is state controlled, matters are simplified to a considerable extent. Unfortunately our form of government and system of medicolegal procedure cannot be so readily adapted to university affiliations as in the foreign countries where these institutions are state controlled and are intimately related to the medicolegal sys-

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†Gonzales, Thomas A.—Acting Chief Medical Examiner, New York City. For record and address of author see "This Week's Issue," page 408.

tems. In this country the privately owned university's educational interests and the purely governmental functions of our medicolegal systems are not easily combined because much of the material has legal significance and cannot be made available for teaching purposes.

In relation to the technical procedures, which are difficult or impossible in the ordinary hospital laboratory, all of these are desirable adjuvants and some are indispensable. Few hospital laboratories are equipped for toxicology or for the types of chemistry required in medicolegal investigations. The reason for this is that these sciences play a small part in hospital practice except in the large urban centers and as a result there is little opportunity for practical training in them. The value of these procedures is not limited to the detection of poisons in human organs; they may be profitably utilized as a routine measure for the detection of alcohol in homicides, highway accidents and many other casualties, for the isolation of industrial poisons and for the examination of many objects connected with crime when for one reason or another a chemical investigation may be necessary. For these reasons alone, toxicology and chemistry may be considered essential in medicolegal practice.

The same is true of serology. Most of the ordinary immunologic procedures used in the average hospital laboratory are of limited value in legal medicine. For instance, precipitin tests for human blood are rarely requested and the usual blood group determinations for the purpose of transfusion are not ordinarily sufficient. Not infrequently it is necessary to examine for the subgroups and to perform the delicate absorption tests. For the purposes of these investigations adequate experience is desirable if satisfactory results are expected. Other tests which may prove useful on occasions are the Wassermann or one of its modifications and the Aschheim-Zondek test for pregnancy in certain cases of criminal abortion when the customary histopathological methods fail. Both are of limited value. The former requires nonhemolized and nonanticomplementary blood and the latter is useless after three or four days postpartum.

While the blood group determinations at the present time are only of limited value, this type of serology may assume increased importance as our knowledge advances. Recently we have established a routine determination of the blood group of every homicide.

The results are recorded in the event that a stain on a weapon recovered later may be compared with the deceased's blood. Depending upon the circumstances, a negative or positive result may have its value. Caution must be exercised in the examination of old and decomposed blood stains where the results are usually unsatisfactory or may be misleading.

There are many other laboratory methods which may prove useful. Among these may be mentioned the various investigations for the presence of human secretions and excretions, the examination of hair, metals, woods and textiles and the detection of radioactive substances. For the latter, equipment for physical processes and physical chemistry is essential.

In stressing these laboratory needs there is no intent to emphasize them but to indicate that no medicolegal system can function efficiently without them. It is not infrequent that after a most careful necropsy the cause of death is not definitely established and further investigation is necessary. For this purpose the laboratories are essential. In a large service about 20 per cent of all cases fall in this category and it has been our experience that about 2 per cent of the total cases remain unsolved despite these investigations. They must of necessity be recorded as unknown causes of death for there is no place for post-facto diagnoses in legal medicine. Another difficulty is the impossibility of obtaining satisfactory histories in some cases and the investigator must rely on his powers of observation and the laboratory aids to establish a diagnosis.

As far as general laboratory service is concerned, it is most desirable that the assistants be completely under the control of the investigator. Furthermore their work should be highly efficient in order that the results may be relied upon. Where financial or other considerations prevent the use of these facilities, it is better to use available hospital laboratories than none at all.

In connection with the suggested changes, if the practical applications of medicolegal investigations are to be elevated to a high plane, it can readily be brought about in those localities where the medical examiner's system exists. I might go farther and state that, if there is to be an appreciable improvement in legal medicine in this country, it can be accomplished by the substitution of the medical examiner for the coroner. There can be no question that the more modern system has conclusively proved its worth where a real change has been made. We accomplish nothing by retaining the basic principles of the coroner and merely changing the name to medical examiner. The fundamental difference between the two systems namely, the separation of the purely medical from the judicial functions and in some localities the divorcement from political control are the important steps in advance. Referring to the coroner Dr. Oscar T. Schultz says, "The duties are medical and magisterial; each kind of duty requires specialized technical knowledge if the work of the office is to be well done." Per-

haps this could be an accomplished fact if one could find this fortunate blend of medical erudition and judicial acumen in the one individual.

EDUCATION

There has been and still is little opportunity for those who wish to perfect themselves in the specialty. It is true that several universities have added courses to their curricula, but it cannot be truthfully said that they are well organized. The fact that the statutes in some places discourage the use of material having legal significance for other than court purposes and the prohibition by prosecuting agencies from revealing the details of medical investigations in criminal cases, leave little available material for the teaching of pure criminal medicine. Nevertheless a considerable amount of material remains which can be used: for example, cases where civil litigation or compensation questions may arise, the many deaths from natural causes, and the use of museum specimens in the criminal cases.

The question whether instruction should be limited to graduates in medicine or include undergraduates has not been definitely settled. It may be admitted that graduate teaching is more satisfactory especially if the student has had training in general pathology. In fact this should be a requirement if results commensurate with the effort are expected.

For postgraduate instruction a course could be easily arranged in the localities where the system of medical examiners exists. This could include practical training at the necropsy table, lectures, demonstrations and conferences. In this way the training of experts in legal medicine for service in all parts of the country could be accomplished and the general development of the science through practical application, research and investigation made possible.

The undergraduate should not be denied the opportunity for instruction in the fundamentals, but no good purpose is served by the attempt to offer an intensive course in the subject. There can be no question that before the specialty of legal medicine is seriously considered as a career, one should be adequately trained in general pathology. It is neither wise nor desirable to attempt a career under other circumstances. While the well-trained pathologist may, after the proper training and practical instruction, acquire a comprehensive knowledge of medicolegal practice, he can in no wise be considered an expert until he has gained the necessary experience by practical application.

The discussion of these educational activities brings up the question of the forensic institute. In this country there is as yet nothing remotely comparable to the first-class institutes of Europe; and while the methods of scientific medicine which form the basis of foreign medicolegal systems are as well developed here as they are abroad, no attempt has been made to coordinate them. This could be easily accomplished in an institute of legal medicine with its compact arrangement of laboratories and the correlation of these agencies with the necropsy work.

If these institutes are to be erected in this country, they should be built with the governmental functions of the medical examiner in mind and with a view to improving his service to the public. The educational facilities can be readily built around the office but should occupy a secondary place to its special duties. Under no circumstances should an institute be erected at the expense of the normal conduct of the medical examiner's investigative functions.

The building of an institute would entail considerable financial outlay and could perhaps be accomplished only in the more populous localities. Nevertheless their influence on the development of legal medicine in the surrounding communities would be noteworthy in addition to the valuable adjuvants in the institute for research, education and the practical applications of the specialty.

Adequate financial support of any medicolegal system is largely a matter of education, education of public officials responsible for the budget and education of the public which is responsible for the public officials. The failure of both to appreciate the importance of the public duties performed and the consequent inadequate financial support often make it impossible to acquire the necessary aids for the proper conduct of the office. This is generally true whether the community maintains a coroner or medical examiner system.

In recent years there has been encouraging support from the medical profession. In some localities organized medicine has become interested to the extent of formulating plans for the future and has strongly supported suggested changes which would, if adopted, result in appreciable improvement. Through this support and through the educational activities of those interested in the development of legal medicine, there is hope for the future.

To summarize, where the coroner system exists it should be supplanted by the modern medical examiner system. The present medical examiners should receive adequate financial support and, where abundant material is available, the facilities to organize an educational system for the training of experts. Courses should be arranged with a view to attracting those who desire instruction at a reasonable fee. This could be easily accomplished in the cities of Boston, Newark, New York and perhaps other cities where both laboratory advantages and abundant material are available.

With the present transportation facilities there are no reasons why the smaller states such as Delaware, Rhode Island and perhaps New Jersey could not maintain a state medical examiner system. The larger states could be divided into districts comprising several counties depending upon the population. Each section could have a medical examiner and assistants administering to its needs and central laboratories could be provided. If for financial or other reasons the laboratories could not be established, hospital laboratories might be used.

Perhaps the consummation of these changes would be difficult when it is considered that the coroner is a constitutional office, an old established system in a country where changes in the existing laws are accomplished with difficulty. Nevertheless if we are to achieve any appreciable improvement in our methods of investigation, some changes are essential. If the abolition of the coroner is not feasible there should be some revision of the office in order that its duties may conform to the requirements of present-day scientific medicine. Regardless of system every scientific aid of proved value should be utilized. New methods of investigation should be developed by research in purely medical and allied sciences.

These needs are indispensable for the future development of forensic medicine, for crime detection and incidentally for the impartial administration of justice.

DISCUSSION

DR. GAY: We are very fortunate in having Dr. Gonzales speak to us on the needs for extending the medicolegal service and the methods for providing for those needs. Once we had an attorney general who was unable to answer our questions on his paper, now we have someone who can. Dr. Magrath, will you lead the discussion?

DR. MAGRATH: It is a treat to hear these most important matters spoken of as to the past and future.

The burden is on the medical schools to furnish means for teaching fundamentals and it must be met. How can we supply the required technical skill, especially in remote portions of large states? How is it handled in New York?

DR. GONZALES: In the state at large there has been no progress; in Westchester and Erie Counties they changed the name from coroner to medical examiner but the system was not changed.

The medical examiner is purely investigative, not judicial. Our cases go to a magistrate and then we testify at the Grand Jury; if the case comes to trial, we testify again as to the cause of death and the surroundings as we find them.

MRS. LEE: Suppose students come to study legal medicine, are there positions awaiting them when they complete their instruction?

DR. GONZALES: No actual positions await them but there are plenty of jobs now held by incompetent men and there is a need for well-trained men to go out and supplant the gynecologists, the nose and throat men and the foot doctors who have been appointed. One college offers thirty lectures a year in a two-year course and after a satisfactory thesis a Doctor of Forensic Medicine degree is offered.

DR. MAGRATH: In other words, medical schools must create the demand for trained men as Public Health has done.

DR. F. D. JONES: How are you able to actually keep your work out of politics?

DR. GONZALES: What I mean is, the politicians do not interfere with our work. If X, Y or Z calls up and says, "There should not be an autopsy on this man," we say, "We are very sorry but it must be done," and it is done. Of course, if an old fellow breaks his hip in a fall at home and dies of pneumonia and someone objects, we can say, "Why, all right," and certify. But we are all civil service appointees from top to bottom and they can't displace us unless for due cause. The Mayor himself could not appoint a man Chief Medical Examiner unless he had passed the civil service examination and if we have an idea an autopsy should be done on a given case, it is done and there is no one to "ask". The New York City law specifically states that, if in the opinion of a medical examiner an autopsy is necessary, it shall be performed by a medical examiner. In other words, the opinion of whether an autopsy shall be performed devolves upon the medical examiner alone.

DR. BRICKLEY: It seems to me there are openings for well-trained men in insurance. The insurance companies ask us from what a person died, and a death claim values the individual in a range from $4,500 to $10,000. It would be very fine if the medical directors of insurance companies had the medical examiner's point of view. We do autopsies for the determination of causes of death. District attorneys do not bother us in Suffolk County, but in others the medical examiner is at the mercy of the whims of the district attorneys.

DR. DOW: I feel I must come to the defense of the district attorney. I have only had one who wished to dictate. The law says we must get permission for a postmortem examination from the district attorney, the mayor or the selectmen. My district attorney said he trusted me and wanted to know the cause of death. Education on this point should spread through the Massachusetts Medico-Legal Society.

DR. F. E. JONES: The qualifications of a medical examiner in this State are that they shall be "able and discreet men, learned in the science of medicine". They are appointed by the Governor.

I was appointed an associate medical examiner on the recommendation of the then medical examiner of the district because of his personal regard for me. Certainly I had no other professional qualifications except that I was a recent graduate of the Harvard Medical School where I had attended the required course in Legal Medicine and had done some special work under Professor Wood and Professor Whitney and had been closely associated with the then medical examiner of the district.

Politics in many cases are behind the appointments but the system is often better than the appointees.

The districts were originally laid out in the "horse and buggy" days with so limited a number of cases in the districts with small population that the medical examiner could never become proficient by practice.

It is obvious that the districts of smaller popu-

lation should be enlarged in this "automobile" age to produce better efficiency.

Regarding education, since no postgraduate course or other means of increasing his efficiency is available, a good course in forensic medicine would be welcomed; book information rarely covers cases.

My medicolegal associates seem to be in one of two classes; either they know it all or nothing. In most cases the more they know the less they seem to know and the more cautious they are.

District attorneys generally are interested in your work only as you prepare cases for "successful" prosecution and in your ability on the witness stand.

They are not interested in your efforts to ascertain causes of death except in criminal cases which are comparatively few. So, without their authority as is the general practice, investigation by autopsy is almost nil in districts outside of Suffolk County.

Another handicap is that outside of Suffolk County where salaries obtain, our fee system, through economy of the County Commissioners, again balks our efforts.

My suggestion is that all medical examiners be placed on salaries proportionate to the size of the district, its population and the number of cases the district has produced in the past.

This would remove to a great extent the present ban on the thorough investigation of the cause of a death in most of our cases and our certification would be a record of fact and not, as often happens, an official guess.

When you consider that in many of our hospitals nearly 50 per cent of deaths are autopsied, where criminal violence is not even an issue, you can readily appreciate how far we are in the Dark Ages with our hands bound doing 2 or 3 per cent, except in Suffolk County.

DR. GONZALES: Our law states that, if a person dies by criminal violence, casualty or suicide, suddenly at his occupation or in apparent health, or in an unusual or peculiar manner or in prison, the police shall notify the chief medical examiner and the medical examiner investigates the circumstances, and, if in his opinion an autopsy is necessary, it is performed by one of the medical examiners.

To illustrate the importance of this power I will cite cases:

CASE 1. A man was riding on a horse after attending a hunt and fell. He was certified as a case of coronary sclerosis and thrombosis because the coroner in this community had no power to order an autopsy. The accident insurance company, which was honest, wished an autopsy. The body was exhumed; no coronary thrombosis was found but his neck was found broken and there were marked hemorrhages in the spinal cord and at the base of the brain. No one is more competent to judge than the medical examiner whether an autopsy should or should not be done.

CASE 2. A prominent man was found at 1:00 a. m. in a subway toilet. The medical examiner viewed the body and something about it made him suspicious and an autopsy was ordered. The cause was found to be that of strangulation. No marks were seen. Strangulation was done by the elbow method which left no finger-marks on the throat. Three men were apprehended, due to the identity of the possessions of the strangulated man found in a pawn shop, and they confessed.

CASE 3. A man was found dead in a furnished room on the West Side of New York. He was a jewelry peddler. His roommate said he had been treated for tuberculosis. No one claimed the body. A hyoid bone fracture was found and the trailed roommate confessed that he had throttled him.

DR. HUNT: I am glad Drs. Jones and Dow spoke of some good points in our system; that it works so well is largely due to the wisdom and good sense of the district attorneys and medical examiners rather than the inherent excellence of the law. We do fairly well under the circumstances. In this state there is a growing tendency to government by commissions. There has come to be an unreasonable and costly overlapping of investigations. Thus in certain deaths occurring in State Hospitals the medical examiner is called but his findings are reviewed by the pathologist from the Department of Mental Diseases. In cases of industrial accidents where death ensues, there is still more overlapping of investigators. If an employee happens to be electrocuted there may follow investigations by the Public Works Department, the Police Department, the local authorities covering electrical installations and the Industrial Accident Board. The medical examiner's findings should be final in such cases and the Commonwealth spared the expense of investigations by other agencies of government. The medical examiners have the authority to employ experts when needed and a comprehensive study of the causes of an accidental death would be possible under his direction. Naturally he would not overstep normal duties of the police.

DR. OVERHOLSER: I am glad to speak for the institutions for mental diseases. Our interest is in the cause of death and whether it might have been due to negligence of an employee; whether it had anything to do with the care of patients, or it was the repetition of something which might be prevented; no criticism of medical examiners is intended. I am sure our Secretary, Dr. Canavan, who is our Department Pathologist, never had the idea of criticizing the medical examiners.

Concerning the Forensic Institute, would it only deal with fatalities? It is important and crucial that expert witnesses for courts and state tribunals be available for psychiatric practice.

I think of the function of a Forensic Institute as not strictly medical but as including chemical, ballistic, photographic and other facilities of value to the State in prosecuting criminal cases.

DR. GAY: Dr. Frankish of Toronto has a laboratory, such as Dr. Overholser speaks of, for final evidence.

DR. GONZALES: The Institute would not be limited to lethal cases. We have a psychiatric section under consideration, and Dr. Israel Strauss is considering its organization. My idea is that our records should be open to the public, other attorneys, and so forth, but the law prohibits news of criminal deaths. At present Bellevue supplies the psychiatric angles, but we would be prepared to take fingerprints, study ballistics and provide the services of the medical examiner, and experts in psychiatry, but I insist that the medical examiner should not be interfered with, or subservient to, a "Foundation" but responsible to the Mayor only.

DR. BOOS: The three cases about which Dr. Gonzales has told us show how important it is to autopsy every case of sudden and unusual death. In most cases the autopsy findings are sufficient to account for the death, in others a chemical examination may also be necessary. In a third class of cases the autopsy findings suggest an adequate cause for death by mechanical violence, but a chemical examination made for some reason or other reveals murder or attempted murder by poison.

I am at present working on a case the autopsy on which showed fracture of the base of the skull, multiple fractures of the bones of both legs and arms, and fractures of several ribs with widespread crushing and hemorrhage of the soft parts. The police obtained the story that the victim was on his way home and was crossing the street when he was struck not once but three different times by passing automobiles. He was finally rescued still living but unconscious, and he died on the way to the hospital.

Dr. Moriarty, the Medical Examiner, made an autopsy and was inclined to pass the case as an automobile fatality, but the local chief of police had inquired into the circumstances of the victim's life and had learned (1) that he had been insured very recently for a considerable sum of money, and (2) that he had been given a solution said to be silver shortly prior to the accident. Upon receipt of this information, Dr. Moriarty decided to have the organs submitted to a chemical examination. The analysis revealed a lethal amount of arsenic, ingested most probably, as Fowler's solution. The victim died, of course, as the result of his being run over, but a profound arsenical intoxication of the system was undoubtedly the cause of a mental condition which made it possible for him to be struck by three different automobiles.

I would like at this point to show you how easily the poison may be obtained.

For some twenty years now the 1 per cent solution of potassium arsenite, flavored with compound tincture of lavender, which is known as Fowler's solution has been the favorite weapon of the poisoner. But how does he obtain it?

We have in Massachusetts a statute which requires every person who purchases Fowler's solution without a physician's prescription to sign his name and address in a "poison book". Now, if by chance the purchaser is not known to the druggist, he can sign, of course, a fictitious name and address. But even when this happens, there is still the handwriting for the police to work on. It would seem, therefore, that if the statute were obeyed it might offer a certain measure of protection against the indiscriminate sale or purchase of Fowler's solution. But how does it work out in practice?

In my investigation of the case which I have just described, I needed some Fowler's solution for certain corroborative tests and I went to a drugstore in down-town Boston and without any trouble purchased an ounce of the preparation. I paid the clerk and left the shop. I returned at once, however, and, as if it were an afterthought, asked the clerk if he did not want me to sign the poison book? He seemed slightly embarrassed but answered, "Yes, of course." I signed at the place he indicated to me and then looked through the rest of the book. I found that mine was the only signature it contained. Reading my thoughts, the clerk said, "None of the druggists ask you to sign for Fowler's solution or any other poison for that matter."

With such a state of affairs it is, of course, quite impossible for the police to prove a purchase or sale of this poison. To be of any use the statute should be rigidly enforced in the first place, and, in the second, in addition to its present provisions it should require, I think, the same identification of a would-be purchaser as is required by a bank or post office where he is not known.

ANOXEMIA IN PREMATURE INFANTS*

A Clinical Study

BY WILLIAM P. BUFFUM, M.D.†

THE purpose of this paper is to show that there is evidence that many, if not all, of the small premature babies that do not do well during the first month of life are anoxemic, and benefit by an increased oxygen content in the inspired air. In the premature nursery at the Providence Lying-In Hospital since January 1, 1933 we have used the Burgess oxygen box with strikingly good effect.

A review of the literature brings out certain points about anoxemia, cyanosis and oxygen administration. Although the authors were mostly dealing with adults, the points have a distinct bearing on our problems.

1. Little practical benefit is obtained from the administration of oxygen, if the hemoglobin already has the normal content of oxygen.[1] Under ordinary circumstances the hemoglobin is 97 per cent saturated; giving added oxygen might add 3 per cent to the hemoglobin and a small amount would go into solution in the plasma. This slight increase in the oxygen content of the blood could not be important.

2. A moderate anoxemia cannot always be recognized by visible cyanosis.[1, 2, 3] Usually cyanosis of the fingernails and lips that is barely recognizable corresponds to a 10 per cent decrease in hemoglobin oxygen. Marked cyanosis indicates a 20 per cent decrease. These figures, however, are extremely unreliable in certain conditions, as the intensity of the cyanosis depends on the actual amount of unoxidized hemoglobin in the capillaries of the skin. In any condition where the amount of blood in the superficial capillaries is small, the anoxemia must be much more extreme to cause visible cyanosis. Surgical shock and asphyxia pallida of the newborn are extreme examples of lack of superficial circulation.

Another illustration of this principle is the well-known fact that, in the presence of a marked anemia, cyanosis does not readily appear. When there is only a small amount of hemoglobin in the skin capillaries, a marked anoxemia is shown by a dusky gray color, an appearance familiar to all physicians and rec-

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ognized as usually indicating a very serious condition. Internists are thoroughly familiar with this condition, as it is of importance in deciding when to use oxygen, especially in pneumonia.

3. Anoxemia has been shown to be injurious, both clinically and experimentally. It has been evident that anoxemia patients, especially in pneumonia, do much better during oxygen administration. In some clinics oxygen is being used extensively for postoperative treatment; it is said to be especially useful after spinal anesthesia.[1] Experimentally it has been shown that the heart tissue and the mesentery become swollen with edema if deprived of the normal oxygen supply.[4]

The time factor is of importance. A definite cyanosis for a few minutes on the operating table may be of no importance whatever, but a very slight cyanosis over a period of days is likely to be seriously harmful.[1] An interesting feature of chronic cyanosis is the ability of the patient in certain cases to develop a defense mechanism, which makes the anoxemia comparatively harmless. This is illustrated by patients with chronic valvular disease, and even more strikingly by cases of congenital heart disease. These patients can, in some cases, live almost normal lives with a constant marked cyanosis. However, this phenomenon does not affect the fact that a suddenly developing and prolonged cyanosis is seriously harmful.

4. In general if oxygen is needed it should be given continuously and not intermittently. As Boothby[4] says, "Either the patient needs or does not need oxygen; if the former he should be getting it all the time; if the latter, the oxygen is too expensive to waste, and, in addition, it may interfere with and divert attention from other therapeutic measures." This does not mean that the giving of oxygen for a short time in cases of sudden cyanosis is not beneficial; obviously oxygen given through a mask is often a life-saving measure. The point is that one should look for signs of a less evident anoxemia before and after the occurrence of urgent symptoms.

With these four points in mind, let us consider the premature baby. The neonatal death rate in premature babies is high. During the first few hours the greater number of deaths occur, but for the first month a good many of these babies live a very uncertain existence. The outstanding symptom is usually cyanosis, occurring in attacks of short duration, but between attacks the baby is pale and often has a gray appearance. Very frequently, if the baby comes to autopsy, a brain hemorrhage is found. If he lives, usually there is later no demonstrable sign of brain injury.[5] Atelectasis is a common finding at autopsy, often with brain hemorrhage if the baby dies in the first few hours, often complicated by pneumonia if the baby dies later. The treatment of the atelectasis by giving oxygen and carbon dioxide has been repeatedly urged by Henderson.[6] I need only speak of it here to say that continuous oxygen in no way interferes with periodic oxygen and carbon dioxide treatment.

Since January 1933 we have been using two Burgess oxygen boxes.[7] Premature infants in poor condition are put in as soon as they arrive from the delivery room; they are kept there until their condition is satisfactory, and are put back again if they become cyanotic. The immediate effects of this treatment are often striking, as would be expected.

In addition to this emergency treatment we have made a practice of giving continuous oxygen to babies that do not gain in weight. We give oxygen for that reason alone, although on closer inspection these babies are found to have poorer color than the others. After being put in oxygen the babies are likely to improve markedly.

Those who are several days old and not moribund regularly become pinker in color. The chart usually shows a weight gain beginning with the oxygen treatment. The marked improvement in color which usually takes place when the babies are put in the oxygen box, seems to indicate definitely that they were anoxemic before the treatment was begun.

Conde and I[8] published the charts of the first two babies treated in this way in 1933 and the gain in weight was very striking. I have here also the charts of the babies treated with oxygen during the last three weeks, showing the improved nutrition resulting from oxygen administration.

The continuous use of oxygen for premature infants is relatively new. Boothby and Amberg added oxygen equipment to the Hess bed, and Amberg[9] published results in February, 1934. He used oxygen on six babies, over periods of from two to four weeks and reported that this treatment diminished the frequency and severity of cyanotic attacks and was lifesaving. Hess[5] has for several years been using an enclosed heated bed with oxygen. He reported[10] that he uses it for "all infants weighing under 1,200 gm., those showing respiratory and cardiac embarrassment, and all others who, it is believed, might be benefited by oxygen therapy." He also reported,[11] "We believe we have resuscitated a fair percentage of babies who otherwise might not have lived, and we do believe our pneumonia statistics are very much better."

Although continuous oxygen is being widely used for resuscitation and cyanotic attacks, I

believe that it has not been recognized that many if not all of the premature infants that do not do well during the first few weeks of life are anoxemic and are benefited by continuous oxygen treatments.

SUMMARY

Evidence is shown that seems to indicate that many, if not all, premature babies that do not do well during the first month of life are anoxemic. The points made are as follows:

1. Oxygen is of no benefit if the baby is not anoxemic.
2. In conditions in which the circulation in the skin capillaries is decreased, cyanosis is not noted until the anoxemia is extreme.
3. Slight continued anoxemia is injurious to the patient.
4. If the patient is suffering from anoxemia, continuous administration of oxygen is indicated.
5. It is well known that premature babies that have cyanotic attacks are benefited by oxygen.
6. We have found that premature babies that do not gain in weight during the first month of life are helped by oxygen. Both the pink color of the skin and the improvement in nutrition show that these babies have been relieved from a condition of anoxemia.

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MUCOCUTANEOUS SYPHILIS (BEJEL) IN SYRIA

The Results of Dark Field Examination

BY ELLIS H. HUDSON, M.D.†

BEJEL is the name given by the Arabs themselves to a disease which is found very commonly among the semi-nomad villagers along the banks of the Euphrates river. It is usually contracted in childhood and manifests itself first as an eruption of the skin and mucous membranes. This stage usually passes without apparent organic damage, but inflammatory sequelae usually appear at some subsequent time in the skin, the nasopharynx, or the periosteum of the long bones.[1]

Although not a venereal disease[2], and not productive of apparent lesions in the nervous, cardiovascular, or other interstitial organs, *bejel* has been assumed to be a treponematosis[3] and those physicians who have had experience with it have called it syphilis.

This assumption is based upon the fact that the early lesions of bejel resemble the secondary eruption of venereal syphilis; the disease, like syphilis, has the property of long and apparently complete latency; and the late lesions of bejel physically resemble syphilitic gummata of the skin, nasopharynx, and long bones. The assumption is further strengthened by the fact that bejel, once contracted, produces positive precipitation and complement fixation reactions in the blood,[4, 5, 6] which remain positive throughout the latent period. Furthermore, the antisyphilitic drugs, notably mercury, bismuth and arsenic, are highly effective against the lesions and symptoms of bejel.

However, crucial evidence of the treponematous etiology of bejel was lacking until recently, when, with the use of the dark field* we have been able to demonstrate the presence of spirochetes of the characteristic morphology and motility of Treponema pallidum in the lesions of fresh bejel infections. The object of this paper is to report on our first fifty positive dark-field examinations.

While bejel is largely a disease of the semi-nomad Bedouins, its incidence among the adults being around 90 per cent, it is also found to a lesser degree among the Arab townspeople living in Deir-ez-Zor and the small towns along the Euphrates. The conditions for the propagation of childhood syphilis are not so favorable in the town as they are in the Bedouin huts and tents, and consequently one finds evidence of syphilis in only a third of the adult townspeople.

Bejel is practically unknown among the Christians, who number in this region about 5,000. Venereal syphilis, however, is present to the extent of about 10 per cent of the adult Christian population, and this form of syphilis

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is so clearly differentiated from bejel that it is given an entirely different name, being known as franghi, or the foreign disease.

MATERIAL

We have divided the fifty cases into four groups of patients. The first consists of thirty-four Bedouins who recently had contracted nonvenereal syphilis (bejel). The second consists of two Arab townschildren who had fresh lesions of bejel. The third group consists of three Christians, two of whom had contracted venereal syphilis (franghi); the third Christian was of especial interest, as his syphilis was of the bejel type. The fourth group consists of eleven Bedouins who had had bejel over a long period.

Thirty-four dark field positive cases in Bedouins with recently acquired bejel. On being asked what his trouble is, the Bedouin patient often replies, "You know better than I do." But he does not say this when he has contracted bejel, a disease which he always diagnoses himself. These thirty-four patients or their parents all gave their own diagnoses spontaneously.

Sixteen were females and eighteen males. Twelve were in the first decade of life, the three youngest being one year old. Four were in the second decade; eleven were in the third decade; there were two each in the fourth, fifth and sixth decades; and the oldest was a grandmother sixty years old.

Of twelve cases which were subjected to the Kahn test in Deir-ez-Zor, the readings were two with 2 +, three with 3 + and seven with 4 +; nine of these twelve sera were tested in the laboratory of the American University of Beirut and all gave readings of 4 + in both Kahn and Kolmer Wassermann reactions.

The source of the specimen for the dark field examination in twenty was a patch on the mucous membrane of the mouth, in eight a papule on the trunk or extremities, and in six a papule on the vulva or scrotum. The following are two illustrative cases, a child and an adult.

(1) The child was a boy three years old, well developed and well nourished. His rectal temperature was normal. He had had an eruption in the mouth for two months which his mother called bejel. His older brother had had it just before he did. He presented grey, circular or oval, slightly elevated patches on the inside of the lips, and on the tongue and pharynx. These were sensitive and bled easily, and saliva drooled from the half-open mouth. All the superficial chains of glands were palpable. Otherwise the physical examination was negative. There was no eruption whatever on the skin, nor about the other orifices of the body. The entire absence of skin lesions in this case is not typical. A specimen from one of the lip patches was positive for spirochetes. In the following eight days he received 0.25 Gm. bismuth metal intramuscularly. The lesions began to fade immediately and were entirely gone at the end of the period.

(2) This was a man aged about fifty, a father of five children, of whom four were living. His wife had never miscarried. His oral temperature was normal. His stools contained hookworm ova. He had never before had bejel, but stated he had contracted it six months before from his children who were then recovering from the disease. The eruption appeared first in his mouth; then he began to have pain in the legs and a general skin eruption. Headache and hoarseness followed. He was limping from the pain in his legs and knees.

He presented crusting lesions of the scalp, arms, legs, and trunk. The papules of the trunk were single or in grouped patches. He had one soft papule on the scrotum under the penis. He was extremely hoarse, and the fauces were congested. He had swelling with tenderness and roughening of both tibiae. He also had a painful swelling of the left index metacarpal and the lower epiphysis of the right ulna. Both knee joints were swollen and tender.

His Kahn in Deir-ez-Zor was 2 +, and his Kahn and Kolmer Wassermann in Beirut were both 4 +. A dark field specimen from the scrotal papule was positive. He received 0.60 Gm. metallic bismuth in the following five days and then dropped treatment. He returned five weeks later and it was noted that his hoarseness was less, his bone lesions less tender, and all skin lesions either gone or much drier and smaller.

Returning to the series of thirty-four such patients, six did not know the source of their infection. In such cases the Bedouin usually says he got it "from God". In twenty-five cases the patient traced the infection to children who had the disease and with whom he had been in contact, usually in the same hut or tent. Three thus got it from a brother, four from a sister, four from a son, three from a daughter, one from his children, one from a granddaughter, two from a cousin, one from a nephew, one from his wife who got it from her young sisters, and five from a neighbor's children.

The three remaining cases were relatives, and it is possible to trace the course of the infection. No. 7810, a man of twenty-eight, seen in April, had had bejel lesions for six months, having contracted the disease from a cousin's household. He was treated in the clinic and his lesions were apparently healed. But his wife had already contracted bejel from him, and later passed it on to No. 8433, her sister, who came to the clinic in October having had bejel for four months. With her was her youngest child No. 8427, aged one and a half years, who had very fresh lesions, having just contracted the infection from his mother. This last sequence is unusual, our experience being that where parent and child have a concurrent infection, the parent has usually contracted the disease from the child.

As to the length of the illness at the time of the examination, two had had it for ten days, four for two weeks, one for a month, four for two months, one for three months, two for four months, two for five months, eight for six months, one for eight months, one for ten months, three for a year, two for several months, and three had contracted the disease "recently".

The lesions and complaints for which the thirty-four patients came were as follows:

patches on the mucous membranes of the mouth in twenty-nine, papules on the trunk and extremities in twenty-two, papules on the vulva, scrotum, or about the anus in seventeen; ulcer of the tonsil in one; laryngitis in four; macular rash in two; tibial periostitis in one; arthritis of the knees in one; and headache and general bone pain in seven.

The temperature at the time of admission was recorded in twenty-eight cases. Six of these were rectal temperatures in children, of which one was below 37°C., four were between 37°C. and 37.5° C., and one was 38° C. Of the twenty-two oral temperatures nine were 36.9° C. or below, eleven between 37° C. and 37.5° C., and two were 37.7° C.

As to prior treatment none had received injections of any kind, and none had inhaled mercury. Two had touched the lesions with copper sulphate.

As to our treatment of the thirty-four cases, two received none and the result in six is not known. The remaining twenty-six completed short series of bismuth injections. They stayed under treatment a total of 284 days, an average of eleven days. They received a total of 190.5 cc. intramuscular bismuth, or an average of 0.75 Gm. of the metal. In only two of the twenty-six was an intravenous arsenical used, totaling for the two 1.35 Gm.

Eight of the twenty-six patients were partially relieved of their complaints. In eighteen cases the lesions were healed or healing when last seen, and the patients were greatly relieved.

Two dark field positive cases in townschildren.

(1) A male infant of two and a half months with papules on the tongue, and around the genitalia and anus. Both parents had bejel in childhood. The mother recognized the condition as bejel, but did not know the source. He had received no treatment when seen. The dark field specimen was taken from the perianal papules. The lesions began fading after 0.10 Gm. bismuth metal had been given intramuscularly. When the child had received less than 0.25 Gm. bismuth metal his mother considered him well and refused further treatment. The child was seen six weeks later and seemed perfectly well.

(2) A girl of fourteen, with ulcerations of both tonsils and patches on the tongue and other areas of the oral mucous membrane. Her oral temperature was 37° C., and she had had no prior treatment. The previous duration of illness was ten days. The patient's duty in her home was to care for her youngest brother, an infant who had just returned with bejel after being wet-nursed for a while in a Bedouin village. The patient received 0.80 Gm. of bismuth metal in the course of fifteen days. All lesions were healed.

Three dark field positive cases in Christians.

(1) Two of these were man and wife, aged respectively twenty-seven and twenty-five, residents of Deir-ez-Zor. The man had had gonorrhea seven years before. He had a venereal exposure in Beirut three months before examination, and subsequently developed some papules on the penis which were given local treatment. He had no symptoms and only came at our request on account of his wife's condition. Upon examination three small papules were found on the frenum of the penis. A specimen taken from one of these was positive in the dark field. His Kahn reaction was 4 + in the Deir-ez-Zor laboratory. The lesions disappeared soon after treatment with bismuth and arsenicals was begun.

The wife came complaining of eruption in the palms and burning in the perineum, present for one month. She was found to have multiple condylomata of the vulva and anus, vesicular and desquamating eruption of the palms, and a fine macular rash on the thighs. Her oral temperature was 36.6°. Her Kahn reaction three years before had been negative; it was now 4 +. A dark field specimen from a vulvar lesion was positive. The lesions disappeared soon after treatment with bismuth and arsenicals was begun.

(2) A young man of thirty, who had been living in a room in the house of a family of Arab townspeople. He did not know whether there was bejel in the household. He denied venereal exposure either there or elsewhere.

Five weeks before admission to the clinic he began to have irritation in the perineum, increasing in severity. Subsequently he developed an eruption of the trunk and soreness of the throat. Examination revealed patches on the right tonsil and left buccal mucous membrane, papules on the sulcus of the penis, the scrotum, the perineum, and about the anus, a roseola of the trunk, and a desquamating eruption of the palms and soles. Dark field examination of a papule on the scrotum was positive. The lesions disappeared soon after treatment with bismuth and arsenicals was begun.

Eleven dark field positive cases in late bejel in Bedouins. We have now eleven further cases of positive dark field in Bedouins whose history of bejel goes back several years. Ten of these dated their original infection from four to thirty years before, with an average of sixteen years. The eleventh was a woman said to be eighty, who had lesions which looked like fresh bejel infection. She was not sure if she had had bejel in childhood.

Five were males and six females. The youngest was six years old, one was sixteen, one seventeen, and one twenty; six were in their thirties, and the oldest was the senile blind woman said to be eighty.

Four of the eleven cases were subjected to the Kahn reaction in Deir-ez-Zor, one being 3 +, and three 4 +. Two of the latter were also tested in Beirut and both gave 4 + in both Kahn and Kolmer Wassermann reactions.

The source of the specimen in which spirochetes were found was as follows: four from pharyngeal ulcers, two from ulcers of the gingiva, and one each from ulcer of the nares, papule of vulva, papule of scrotum, patch on tongue, and patch on uvula.

The history and lesions presented by the eleven cases were as follows:

(1) Ulcer of the pharynx, duration one month. Had a skin ulcer of the hip two years before. Original bejel over seven years before at the age of thirteen.

(2) Ulcer of the hard and soft palate, duration three months. Original bejel six years before at the age of twenty-four.

(3) Ulcers on the hard palate and left tonsil, papular skin eruption, headache and bone pain. Had had such lesions "on and off" since original bejel six years before at the age of twenty-four.

(4) Patches on the tongue, hoarseness and dyspnea, duration one month. Original bejel at the age of two, four years before.

(5) Ulcer on the soft palate, and multiple periosteal lesions. Duration of sore throat one month, of bone lesions ever since original bejel in infancy sixteen years before.

(6) Ulcer of the left nares and pharyngeal cicatrix, and old periostitis of tibiae. Duration of first, six months; of second, eighteen months; and of third much longer. Original bejel in childhood thirty years before.

(7) Perforating ulcer of the soft palate of recent origin. Original bejel in childhood twenty-five years before.

(8) Patches on the tonsils and papules on the scrotum and arms. Duration of former three weeks, of latter ten days. Original bejel in childhood thirty years before.

(9) Patches on the uvula and tonsils, duration three months. Possibly had bejel in childhood seventy-five years before.

(10) Ulcers of the gingiva and both tonsils, duration two months. Had bejel in childhood ten years before.

(11) Ulcer of the gingiva, duration two months. Had bejel in childhood thirty years before.

Only one of the eleven cases had received prior treatment; Case 1 had had three injections of some sort for the hip ulcer two years before. Nine of the eleven submitted to treatment in the clinic long enough to secure definite healing of the lesions constituting the chief complaints. The nine cases remained a total of 111 days, an average of twelve days each. They received a total of 82 cc. intramuscular bismuth, an equivalent of about 8 grams of the metal, and an average of 0.90 Gm. each.

COMMENT

A majority of the fresh bejel cases were adults. This is not in keeping with the distribution of these cases in the general Bedouin population. The explanation is that adults often seek treatment, whereas parents of children with bejel usually regard treatment of this "self-limiting" childhood disease as superfluous.

In the first thirty-six cases described, comprising thirty-four Bedouins and two townschildren, the course of events is clear. The subject when seen had a recent infection with syphilis which manifested itself in lesions mostly of the skin and mucous membranes. The longest time elapsing between the original infection and the time of examination was one year. No treatment had modified the course of the disease. The high proportion of Bedouins as compared with townspeople in this group is in keeping with their relative bejel morbidity.

A further fact must be emphasized. These thirty-six cases were the total number of such cases which were examined with the dark field. The finding of numerous spirochetes of the morphology and motility of Treponema pallidum was constant in these early cases of bejel; none that we examined had a negative dark field.

The treponemata of the two cases of venereal syphilis (franghi) were indistinguishable in the dark field from those found in the bejel cases.

The case of the young Christian man who contracted bejel is of great interest. A conclusion cannot be drawn from one case, but it would seem that bejel runs true to form even when contracted by an individual outside of the Arab-Bedouin community. One would have expected to find an "initial lesion" in his case. There is a suggestion here that there is a biologic difference between the viruses of bejel and franghi, and that it is not altogether a question of difference in "soil".

Now we turn to the eleven cases cited last above. We are here again dealing with Bedouins who have nonvenereal syphilis. But here the history is much longer and the course of events not so clear. The original infection dates back an average of sixteen years. In some cases there was a period of good health and then a suddenly appearing "late" lesion. In others there were lesions of various kinds appearing at intervals throughout the whole period of the disease.

Some of these late lesions were similar in character to those from fresh bejel infections, such as patches and papules. These were probably mucocutaneous relapses. Others were perhaps gummata, expression of the allergic state of the late stage of the disease.

We were able to find spirochetes in only eleven of such late cases of bejel, although many more than this number were examined with the dark field. The spirochetes were also much less numerous. This infrequency or scarcity of spirochetes is in contrast to the constancy of the positive dark field in early cases. It is our impression that, given time and patience, it would be possible to demonstrate spirochetes in a larger proportion of these late lesions. There is clinical evidence that these late lesions of bejel are very infectious.

In view of the extreme difficulty experienced elsewhere in getting a positive dark field from gummata in late venereal syphilis, it is probably remarkable that we were able to collect as many as eleven cases of positive dark field in late cases of bejel within a short time. Probably the cases of relapse furnish most of the positive specimens, and the gummata of allergic origin conform more nearly to gummata examined elsewhere in their infrequent exhibition of spirochetes.

SUMMARY

(1) Dark field studies of bejel are herewith reported for the first time.

(2) Spirochetes of the morphology and motility of Treponema pallidum were found constantly and abundantly in the lesions of freshly acquired bejel, whether in children or adults. This is crucial evidence that this disease of the Bedouins is a treponematosis.

(3) Characteristic spirochetes were also found, but less constantly and less abundantly, in cases of late bejel. Most of these were probably instances of mucocutaneous relapse, and it would seem that relapse in acquired syphilis of childhood is more common than in venereal syphilis.

(4) The spirochetes of bejel were indistinguishable from those of two cases of venereal syphilis (franghi).

(5) Protocols of typical bejel cases are given. They show that bejel (1) is highly contagious and is usually contracted by and from children, (2) is an afebrile malady with little effect on the general constitution, (3) usually exhibits mucous and cutaneous lesions in the early cases, with occasional involvement of the periosteum, (4) retains the activity and contagiousness of the early lesions up to one year or more, (5) often becomes contagious again many years later in mucocutaneous relapse, (6) is uniformly accompanied by positive precipitation and complement fixation reactions in the blood, and (7) responds very favorably and very quickly to intramuscular bismuth therapy.

The apparent absence in bejel of the initial lesion known as chancre in venereal syphilis, is noteworthy.

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VERMONT STATE MEDICAL SOCIETY

HYSTEROPTOSIS*

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AT the New England College of Surgeons' 1934 meeting I reported fifty cases of vaginal hysterectomy, comparing the relative merits of this operation with fifty hysterectomies done by the abdominal route. Since that time, I have added to my series fifty-five more vaginal hysterectomies. The major indication was for relief of complications arising from ptosis of the uterus of a greater or lesser degree.

Ptosis of the uterus is the most common of uterine displacements in women who have borne children. The disability resulting varies in degree from slight discomfort to the development of malignancies incident to this condition. A woman may have an extensively lacerated perineum and suffer little or no discomfort so long as no rectocele pocket is present, but lesions of the anterior wall are quite different in this respect. A sensitive uterus, a dull ache in the pelvis, frequency of urination, urine escaping on lifting or coughing, the presence of residual urine, bladder discomfort, backache and nervous irritability may accompany a slight degree of prolapse of the uterus. This condition may even escape the notice of the examining physician unless the patient is examined in a standing position.

Cystoscopic examination in these cases reveals a congested trigone, which in itself gives distressing bladder symptoms even though no bladder infection is evident. It is fair to presume that cystitis is more prone to develop in bladders whose anatomic relations to the other pelvic structures have been altered. This is evidently not an axiom, however, for one encounters all grades of bladder displacement with no evidence of inflammatory changes, even in cases of long duration.

We were formerly taught that the incidence of malignancy superimposed on an ulcer of a prolapsed uterus was rare. But when biopsies are made of the ulcerated area, the presence of cancer is frequently discovered. Emmett and Taussig in a recent article reported ten cases of complete prolapse with malignancy developing in four.[1] In my series I have found malignant disease in three cases, one of which was very advanced. These do not include uterine cavity malignancy of which there were four cases. If one accepts the chronic irritation theory as an important factor in cancer causation and adds chronic inflammation due to lacerations and injury, conditions would seem to be ideal for the development of carcinoma of the cervix. Such

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an explanation certainly appears more plausible than Cohnheim's theory of misplaced embryonal tissue and the infection and parasitic theories. Leukoplakia, an increase in the upper two layers of the cervical epithelium, frequently precedes the development of cancer. Hinselman considers this so important that he recommends radical treatment in every case, stating that 30 per cent will develop cancer.[2] The presence of leukoplakia and cancer on a completely prolapsed uterus is certainly not common, but it should not be assumed that cancer cannot develop.

Many factors are mentioned in the etiology of uterine prolapse. It is usually a lesion of parous women and is the result of some injury sustained during parturition. In the nulliparous woman, it may result from tumor pressure in the pelvis or be incidental to atrophic changes in connection with the menopause. A weakened, damaged and relaxed pelvic floor, increased weight of the uterus and increased intra-abdominal pressure are provocative factors. Fothergill asserts that an atrophy and degeneration of the fibrous and muscular elements of the lateral masses of subperitoneal tissue occasion prolapse and that the lower parts of the paravaginal and paravesical tissues alone are affected.

Any or all of the pelvic structures may be involved in the descent of the uterus—the vaginal walls, the bladder, and the rectum especially. The process usually extends over a period of months or years in its development.

Modern obstetrical care is required in the prophylaxis of procidentia. The primary repair of all lacerations is quite essential. These include cervical, anterior wall and pelvic floor lacerations. One who has practiced obstetrics in the homes of patients can readily appreciate the difficulty involved in the satisfactory repair of these lesions. Inadequate assistance, insufficient light and lack of facilities, including asepsis, are only a few of the obstacles to be overcome. Subinvolution should be guarded against. Breast feeding and suitable time in bed to allow for the healing of lacerations, the knee-chest position and the use of mechanical support, when indicated, are points which should not be overlooked. Add to these the avoidance of accumulative masses of feces in the bowel, especially impaction, distention of the bladder, the development of anemia or debility and the avoidance of fatigue and we have done much for the patient.

NONSURGICAL TREATMENT

Nonsurgical treatment is of little relative value. One is justified in resorting to mechanical appliances for the relief of cases with distressing symptoms and also in cases where surgical treatment is contraindicated. To render temporary relief may be the means of delaying operative treatment until conditions develop that make it ill-advised or impractical for surgical correction. One too frequently encounters malignant changes which have arisen as the result of previous treatment. I allude to traumatization of the cervix, causing a chronic inflammation from which a tumor has developed. Both pressure and inflammation are apparently provocative of such. The dread or fear of surgical treatment and inability to find a convenient time for an operation has a decided tendency to delay correction permanently when some little relief is given by mechanical support. This impresses me as being so important that one is scarcely justified in affording temporary relief without making it clear that it is not lasting and something more radical is imperative. Patients go on for years with a vaginal discharge and discomfort incident to pessaries simply because they are relatively benefited.

The doughnut type of pessary of hard rubber gives the best service in selected cases. Tampons are helpful, chiefly as temporary support and in healing of ulceration preliminary to operation. Ball pessaries of hard rubber are most serviceable in elderly women. Both types are readily removed and cleaned by the patient, and she should be instructed of the necessity of so doing. Occasionally the surrounding tissue adjusts itself so securely to a hard rubber pessary as to make its removal exceedingly difficult. Soft rubber pessaries, especially the inflated type, become foul and irritating. Stem pessaries attached to a belt, to be worn during the day, are preferable when the hard rubber pessary cannot be used.

SURGICAL TREATMENT

Demonstrable lesions, especially when associated with discomfort, are indication enough for surgical intervention. A sagging bladder or an extensive prolapse, even in the absence of distressing symptoms, usually should be subjected to operation. The results from properly performed surgical operations are uniformly good, so much so that chronic invalids are frequently restored to good health.

The choice of operative procedure should depend upon the pathology, the patient's age and the possibility of future pregnancies. No one type of operation is best employed routinely. In younger women, vaginal repair combined with abdominal correction of retrodisplacement of the uterus, usually a Gilliam type operation, is indicated.

After the childbearing age, a Watkins interposition operation is favored by many men in well-organized clinics. Everett,[3] an enthusiastic advocate, prefers this operation to vaginal hysterectomy, and in a recent article defends his

position by reporting five unsatisfactory results in twenty-six cases, seventeen of which were followed up. It would seem pertinent to question the technic employed, as such results are hardly consistent with results obtained by surgeons generally. The Watkins operation is especially desirable in elderly women whose condition demands a minimum of operative procedure. A combined vaginal operation and ventral fixation is favored by many general surgeons. It requires rather less surgical skill and the results are satisfactory in many cases. I am impressed, however, with the number of failures that evidently follow this operation, for eight women, classified as third degree prolapse in my cases, had had a previous ventral suspension operation.

The Fothergill operation finds much favor, in Canadian clinics especially, and I should expect equally as good results as in the Watkins operation, for its limitations are practically identical.

One must bear in mind that a complete removal of the cervix is accomplished in a vaginal hysterectomy, removing the possibility of a latent cervical malignancy. Woolston[4] mentions nineteen cases of cancer developing in 1014 patients out of 2420 of Pemberton and Smith's cases in a ten-year follow-up, an incidence of 1.8 per cent. Meigs reports 1.6 per cent in his series of cases and concludes that cervical repair is not a perfect prophylaxis. It is doubtless true, however, that cervical repair and cauterization and especially amputation of the cervix are well worth-while in the prevention of cancer. Nevertheless, cancer has been reported to follow each procedure. Heaney[5] recently reported a series of 627 vaginal hysterectomies for benign disease with three deaths. Hospitalization averaged 12.03 days. He concludes by stating that vaginal hysterectomy should be more frequently performed. Never has there been a series of abdominal hysterectomies with so low a mortality and morbidity rate.

Complete uterine prolapse calls for vaginal hysterectomy with repair of the cystocele and relaxed perineum to obtain the best results. The easy cases require scarcely more than thirty minutes, while the more difficult cases require about an hour. As I became more conversant with the technic employed and more favorably impressed with the results obtained, I found myself doing more vaginal hysterectomies and fewer of the less radical operations. In spite of the slight amount of added risk, the better results obtained justify this decision.

The technic employed differs only in minor details from the classical operation. The paracervical supports and lateral ligaments of the uterus are securely approximated to their fellows on the opposite side, and the anterior part of the body is utilized to provide support to the bladder by closing the vesicocervical space, in reality the point of bladder hernia. The remaining portion of the mass with proper suturing provides support for the lateral and posterior vaginal vault. A radical repair of the rectocele and relaxed perineum is essential to provide support and to construct a suitable vagina.

A consideration of the anesthesia to be employed seems pertinent, for many elderly women who are classed as scarcely average or poor risks are operated on under the influence of narcotics and local anesthesia. Barbital, gr. 10, is administered at eight the preceding evening with nembutal, gr. 3, and scopolamine, gr. 1/150, to follow in the morning, three hours preceding the scheduled time of operation. Scopolamine, gr. 1/250, and nembutal, gr. 3, are given one and a half hours later, if the patient is not sufficiently narcotized. Morphine, gr. 1/8, and atropine, gr. 1/150, are administered one-half hour preceding the operation. One per cent novocaine, injected into the perineal body and tissues lateral to the cervix, effects a satisfactory anesthesia as a rule. Exceptionally a patient becomes restless and unmanageable. Then nitrous oxide and oxygen gas is added, with ether if required. Spinal anesthesia and avertin as a basal anesthetic have been used in several cases. Personally I prefer narcosis.

An attempt has been made to condense and tabulate the last 105 consecutive cases of vaginal hysterectomy on which I have kept records. The fact that my cases of hysteroptosis were treated by this procedure merits such consideration.

TABLE 1

AGE INCIDENCE

1	between	ages	of	25 to 30
22	"	"	"	30 to 40
33	"	"	"	40 to 50
24	"	"	"	50 to 60
19	"	"	"	60 to 70
6	"	"	"	70 to 75

TABLE 2

INDICATIONS FOR OPERATION

Fibromyoma of the uterus	39
Menorrhagia, uncontrolled	24
Prolapse of the uterus, 1st and 2nd degree	46
" " " " 3rd degree	12
Lacerated and infected cervix	38
Cystocele	50
Malignancy	7
Uterine polyp	8
Sterilization	3
Rectocele present	41

GENERAL NOTES

Large leiomyomas, requiring morcellation, were noted in seven cases. In one case the

uterus was divided into fifteen pieces in order to effect its removal.

Fifty-four patients developed a temperature of 100.6° or over at least once following the operation. This usually occurred on the second postoperative day and practically every patient had a slightly elevated temperature at this time. Only fifteen patients showed a temperature of 101° for more than one day.

The first fifty vaginal hysterectomy cases were drained vaginally with a small collapsible rubber drain inserted into the dependent peritoneal cavity. Twenty-four of this series had a temperature of 100.6° for at least one day. The second series had no drain and thirty showed a similar rise in temperature. No notable difference was evidenced during the convalescent period.

The average time of hospitalization was sixteen days postoperative. All but eight patients left by the nineteenth day, and but one patient was required to stay beyond this period.

COMPLICATIONS

One patient required an abdominal incision after the removal of the uterus vaginally. A large leiomyoma became separated from the fundus of the uterus. It occupied a high position and its removal was facilitated by the abdominal route.

Cystitis was the most frequent complication noted postoperatively. A retention catheter was used in all cases when the condition existed before operation and also in cases of extensive bladder denudation to prevent frequent catheterization.

One case of pelvic peritonitis, two cases of postoperative pleurisy and two cases of rectal fecal impaction were added complications.

Three deaths occurred, establishing a mortality rate of 2.8 per cent. One patient, forty-nine years old, died of surgical shock eight hours postoperatively as transfusion was about to be given. She presented an extensive case of hyperplastic and polypoid endometritis with a history of two months of bleeding. There was no postoperative bleeding. At autopsy extreme anemia of the viscera was found. Doubtless hypodermoclysis added to her anemia. The second patient, aged sixty-six, a debilitated old lady, developed pneumonia and died six days postoperatively. The third patient, aged sixty-eight, died of emboli on the seventh day postoperatively. She had made a satisfactory convalescence up to that time.

END-RESULTS

An attempt has been made to ascertain the results of operation by a six-month follow-up letter, and to date but one case of recurrence of protrusion of pelvic structure has been noted. This is a patient who acquired a persistent cough soon after an extensive repair of a cystocele associated with her hysterectomy. The protrusion was slight, and a pessary worn for six weeks relieved the defect. Vaginitis due to trichomonas, dyspareunia the result of extensive repair and formation of scar tissue and menopause discomforts are added complaints.

CONCLUSIONS

Vaginal hysterectomy is a valuable aid in the surgical treatment of hysteroptosis.

Malignancy may develop in the cervix and fundus of a prolapsed uterus.

Fourteen slides were shown, and the following case report was given:

Mrs. J. J., aged 69, gave a history of five normal deliveries. A growth was removed from the cervix seventeen years ago, but the nature of this was undetermined. She had had a watery vaginal discharge for ten or fifteen years and the discharge had been tinged with blood at times for three years. The uterus was completely prolapsed in 1934. The bleeding became profuse in March and April, 1935.

She entered the hospital in April, 1935. The uterus was prolapsed to the third degree. The cervix and the entire anterior and one third of the posterior vaginal wall were involved in a growth which had the appearance of a squamous cell carcinoma. The laboratory report on a biopsy specimen confirmed the diagnosis. At a consultation with the radiologist and surgeons it was decided that the use of x-rays or radium was futile. Vaginal hysterectomy with removal of the involved tissue was advised.

Operation was performed on April 10. With the electric cautery the bladder was separated from the diseased vaginal mucosa. The uterus and its adnexa were removed. Satisfactory new floor to the bladder was made by bringing healthy tissue from the sides of the vagina. The relaxed perineum and rectocele were repaired. The patient left the hospital in thirteeen days. Her general condition was markedly improved.

A recurrence of the carcinoma was demonstrated in August and was cauterized with the electric cautery. With the exception of cystitis, which has been annoying, the patient is in fairly good physical condition.

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CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 22351

PRESENTATION OF CASE

First Admission. A fifty-nine year old white woman was first admitted complaining of shortness of breath and wheezing.

For about nine months the patient had mild soreness over the precordium, not accentuated by activity. It was not sufficiently severe to interfere with her activity and except for this she felt perfectly well. Three months before entry she first noted wheezing respirations and dyspnea with the slightest exertion. There was no cough, expectoration, or orthopnea. The patient could lie perfectly flat or sit erect but intermediate positions produced respiratory discomfort. Two months before coming to the hospital she was seized with a sudden sharp stabbing pain in the lateral portion of the left chest. The pain persisted for about twenty minutes and was aggravated by movement and deep inspiration. Thereafter it disappeared completely but recurred at two successive weekly intervals. The attacks occurred at night while in bed and were followed by a slight sensation of soreness in the region involved. During the month prior to entry there were no further attacks of pain but the dyspnea continued unchanged.

Physical examination showed a well-developed, obese woman in no acute discomfort. The heart was normal but the blood pressure in the right arm was 150/90 and in the left 190/100. There was dulness to flatness over the entire left chest anteriorly, most marked in the upper half. In this region the breath sounds were distant, bronchial in character, and tactile fremitus was diminished. Distant pectoriloquy was audible. Posteriorly the left chest was dull to flat from the angle of the scapula downward. Rare crackling râles were heard here and breath sounds and fremitus were diminished in intensity. The remainder of the examination was essentially negative.

The temperature, pulse and respirations were normal.

Examination of the urine was negative. The blood showed a red cell count of 4,600,000, with a hemoglobin of 80 per cent. The white cell count was 7,750, 71 per cent polymorphonuclears. The stools were negative. A Hinton test was negative. The nonprotein nitrogen of the blood was 27 milligrams per cent.

X-ray examination of the chest showed a large mass, measuring 14 by 9 centimeters, extending out from the mediastinum and almost completely filling the left mid-lung field. The tumor extended from the level of the first rib anteriorly to the fourth interspace. It was rounded in shape with a slightly lobulated lateral border. The lateral view showed the mass lying anteriorly, its anterior margin being flattened against the anterior chest wall. It was intimately related with the shadows of the ascending aorta and pulmonary conus in all views taken but it did not pulsate. There was complete collapse of the left lower lobe with emphysema of the upper lobe and a small amount of fluid at the left base. The heart shadow was slightly displaced to the right but the right lung field was clear. There was no evidence of erosion of the ribs, sternum, or vertebral column. Some films showed a definite outline of the aorta and there was no evident connection with the mass.

There was no change in the patient's general condition and she was discharged on the seventeenth hospital day.

Second Admission, twenty-four days later.

Following her discharge the patient remained comparatively comfortable. No note of recurrent dyspnea was made.

The physical findings were unchanged except in the chest, where dulness to flatness was elicited anteriorly from the clavicle to the third interspace and posteriorly from the second rib to the fourth interspace. The breath sounds in this region were bronchial in character but distant in intensity. Egophony was audible and vocal resonance considerably increased. The blood pressure readings were now noted as 150/100 in the left and 170/100 in the right arm.

On the third hospital day a chest operation was performed.

DIFFERENTIAL DIAGNOSIS

DR. JOHN D. STEWART: This pain in the left chest I take to be pleuritic pain, such as might be produced by infection or invasion of the pleura or by tear of an adhesion of some sort.

She has a normal blood picture, and there is no evidence of infection there which bears out the normal temperature.

Will you please demonstrate the x-rays at this point, Dr. Holmes?

DR. GEORGE W. HOLMES: I think I had better run through several films so you may get

a better idea of the picture. This is the mass on the left side. The absence of a pulsating wall is some evidence against an aneurysm but nothing very definite, although one would expect an aneurysm as large as that to show some pulsation. The lung field is distinctly smaller and although the diaphragm is not clear it does look high, suggesting some interference with the passage of air into that side of the chest. In an oblique view you can see the aorta pretty well. This is the aorta and I think that would almost rule out an aneurysm. Here is a rather better film of the same area. Here is a straight lateral view and in this film the mass is rather better shown and the lobulation spoken of is visible but it is not very striking, rather smooth and sharply outlined. The heart is displaced slightly away from the mass. There is some fluid at the extreme base and definite evidence of interference with air entering that side of the chest. That may be due to pleurisy. It might explain the failure of the lung to expand and there may not be actual obstruction of the bronchus. In the lateral view the posterior part of the lung field is perfectly clear so the mass must lie either superimposed on the heart shadow or somewhere in front of the mediastinum.

DR. STEWART: Can you make out the collapse of the lower lobe that is described? Is that a pretty definite thing?

DR. HOLMES: It certainly suggests it. I think this part of the lung is brighter than the opposite side, certainly brighter than this area on the same side. So that there is some compensatory emphysema in that lobe.

DR. STEWART: There is no evidence of involvement of bone. That would be a pretty accurate observation, too?

DR. HOLMES: Yes, I think so. There is no evidence of calcification in the mass itself, which would help a little against the diagnosis of aneurysm. Here is a film taken a little later. Here is one that shows an increase in the amount of fluid, so that there is now considerable fluid in that side of the chest. From the x-rays we can see that there is a tumor mass lying in the anterior and middle mediastinum in the left upper chest which interferes somewhat with the expansion of the lung on that side. It is accompanied by fluid and there is no evidence of bone erosion and no evidence of calcification in the tumor itself, and no visible pulsation.

DR. STEWART: From the x-ray studies we may be fairly certain that the tumor arose outside the lung, or would you go that far?

DR. HOLMES: No, I do not think we can go that far but it is more likely.

DR. STEWART: In considering the differential diagnosis here it seems to me that we can begin considering the non-neoplastic lesions which might produce a solitary tumor in the chest. Aneurysm is the first thing we might think of, and it has evidently been thought of by the examiners here. So far as the history is concerned aneurysm would be entirely possible. The x-ray would possibly be consistent with aneurysm although, as Dr. Holmes has pointed out, certain things would not fit in, such as the lack of pulsation, the lack of calcification in the wall, and the statement is made, I presume on the basis of fluoroscopic examination particularly, that there is no communication between this mass and the aorta, or at least no evident communication. In addition to that, the physical examination would not support the diagnosis of aneurysm inasmuch as the cardiac examination was negative. This variable pressure in the two brachial arteries I take to be associated with the shifting compression in the mediastinum without direct involvement of the blood vessel. Also the Hinton test is negative. That would be evidence against aneurysm but certainly would not exclude the diagnosis. All in all I think that aneurysm is pretty unlikely here. The bulk of evidence certainly points toward some other diagnosis and I would be influenced particularly by the x-ray finding in which it is stated that the tumor was apart from the aorta.

The second non-neoplastic possibility would be mediastinal abscess. Mediastinal abscesses are pretty uncommon and certainly one of that size would be extraordinarily rare. There is no evidence of general reaction to infection, but such an abscess might be a cold abscess and hence might not produce signs of infection. The sharp border of this mass makes me think it is a tumor and not an inflammatory mass. In addition there is no evidence of erosion of bone or involvement of the neighboring cartilages which one often sees in cold abscess of the mediastinum, so that I would discard this possible diagnosis.

Another possibility, and a very remote one, would be lung abscess and possibly even encapsulated empyema, but those conditions are so unlikely here that I simply mention them in passing. Having rejected the non-neoplastic diagnostic possibilities, let us consider the lesion as neoplastic. Granting that we are dealing with an intrathoracic tumor, we must consider that it might lie either inside the lung or outside the lung, and of the possibilities for intrapulmonary neoplasm by far the most common is carcinoma of the lung. The history would be consistent with such a diagnosis in this case, although it would be unusual not to have any sputum with a lesion of this size arising in the bronchial mucosa, and usually there is bloody sputum during the course of development of such a lesion. The diagnosis of bron-

chiogenic carcinoma would be supported by an x-ray picture of collapse of the lower lobe and emphysema in the upper lobe. There is trapping of air in the upper lobe in this case, so that part of the x-ray picture is all right. The anteroposterior view would support that diagnosis, too, perhaps, although that would be a very large carcinoma of the lung, it seems to me, to have produced symptoms for only three months. The lateral view of the x-ray makes carcinoma of the lung to my mind much less likely because it places the tumor pretty definitely in the anterior mediastinum. So that I will pass by bronchiogenic carcinoma as a diagnosis in this case. Then there is metastatic carcinoma or sarcoma as a possibility. We have no evidence of the presence of any primary lesion and such metastatic lesions in the lung usually are not solitary, and usually involve parts of the lung field which we do not see by x-ray here. They involve the parenchyma of the lung rather than being placed so far anteriorly. Then there is the solitary metastasis to the lung that we occasionally see from a hypernephroma. Such lesions have been taken out on the presumption that there was only one metastatic focus, but we have nothing to suggest that there was a hypernephroma in this case. The urine is noted as being negative. The abdominal examination is negative. There is no evidence of any metastases elsewhere in the abdomen, so that I will pass by also the possibility that this might be a metastatic tumor of the lung.

Then we come to extrapulmonary or mediastinal tumors which might cause this picture. A possibility that we might speak of first is tumor arising in the bones of the chest wall. Such tumors as osteoma, chondroma, osteochondroma or osteosarcoma are not particularly uncommon. About three-fourths of these tumors are malignant and sarcomatous and it is true that they may present chiefly internally rather than externally. I think it would be pretty unlikely to have a tumor arise in the sternum or costochondral junction as large as this without producing some external swelling as well. In addition we have Dr. Holmes's word that the bones of the chest are shown to be uninvolved by x-ray. I think that this possibility we will exclude.

The next possibility to be considered in such a mediastinal lesion is tumor arising in the pleura; such tumors are very uncommon. They may arise from any part of the pleura, and they tend to present inwardly rather than externally. They may attain a considerable size. They may be benign or malignant. These tumors are very unusual, however, and I think apart from their rarity we are helped in excluding this diagnosis by the x-ray in which the picture is merely a flattening against the sternum rather than involvement of a considerable area of the parietal or visceral pleura.

The next possibility I thought of was substernal goiter, and it seems to me that is a very real possibility in this case. I do not see how we can be certain we are not dealing with such a lesion. Substernal goiters may or may not be associated with palpable thyroid tissue in the neck, and the fact that the thyroid was not mentioned on physical examination does not influence us one way or another. Substernal goiters or intrathoracic goiters tend to present internally in the anterior mediastinum, and that apparently is the position of this tumor. This is a very large tumor, however, and just on the basis of its size and unlikelihood I will pass that by as being my first choice, although I do not believe we can exclude it as a diagnosis.

Another possible diagnosis which I will mention only in passing is tumor arising in nerve tissue, such as neurofibroma and ganglioneuroma. Such tumors are much more common in the posterior mediastinum than the anterior mediastinum and they are rare tumors, although we have encountered several in this hospital in the past few years. But I do not think I will put that in as first choice, although here again we have no way of making sure we have not that lesion to deal with.

Then we come to Hodgkin's disease as a possibility. Pertinent to that diagnosis, the blood picture, what we have of it, is normal. There is no evidence of any involvement of the lymphatic system elsewhere, no palpable lymph nodes in the neck. The shadow of this mass is not suggestive of Hodgkin's disease in my opinion. It has a very sharp outline, it appears to be a solitary tumor rather than a cluster of smaller tumors, and it is of very large size without having produced any significant symptoms. However, Hodgkin's disease is certainly a possibility in the diagnosis.

Next for consideration would be a thymoma. That is an ill-defined tumor. Apparently its histology varies, but quite often it is lymphosarcomatous in nature and some believe that lymphosarcomas of the anterior mediastinum almost always arise in the thymus. This is an unusual tumor but there is nothing in the picture here to exclude that as a possibility. Such tumors are usually malignant, I believe, and produce more venous obstruction than this tumor has produced. We have no evidence of development of a collateral circulation here. There is no description of venous engorgement in the face and of the upper thorax and presumably no interference with the flow through the superior vena cava. Finally, the diagnosis that seems to me most likely is mediastinal dermoid, that term being used to include teratoma. This woman is fifty-seven years old. That is a little bit against the diagnosis because ordinarily

symptoms from the mediastinal dermoid appear earlier in life. Such tumors may be encapsulated and give the round smooth outline that we see in the x-ray here. The position as determined by the lateral x-ray view is consistent with the diagnosis. The absence of evidence of malignancy is somewhat in favor of the diagnosis. And all in all I would put that as my first choice. The three most likely diagnoses in my opinion would be a mediastinal dermoid, a lymphosarcoma, possibly arising in the thymus, and a substernal goiter.

At this point perhaps we will be permitted a bit of inferential reasoning. We see that the patient was discharged from the hospital and came back twenty-four days later for operation. Now the question is why was she allowed to go out for that period of time? Perhaps she refused operation. On the other hand, since we see that her symptoms remained unchanged, it is unlikely that she would have come back quite so soon if that were the case. A great help in making a diagnosis of a large mediastinal tumor of this sort is what is called a trial dose of x-ray. We give six to eight hundred R units and within a week if the tumor is lymphoblastoma there will be a diminution in its size and the lesion will go on to practically complete, although temporary, disappearance. Suppose that she did have a trial dose of x-ray here, and she came back and had an operation; evidently there was no response to the x-ray. Therefore, if we look at it in that way she did not have a lymphoblastomatous tumor. Lymphosarcoma would also respond very well to x-ray treatment and presumably if the lesion did fail to respond to x-ray it was not lymphosarcoma. On the other hand, dermoids are not particularly radiosensitive, nor, of course, is a substernal goiter. Therefore, I will say that mediastinal dermoid is my first diagnosis and that a substernal goiter is a more remote possibility.

Dr. Donald S. King: The thoracic service made the same diagnosis that you did, Dr. Stewart. We thought it was probably a dermoid. We were led to that diagnosis by the same reasoning that you were, because it appeared to lie in the anterior rather than the posterior mediastinum. We have been seeing a number of chest tumors in the past few weeks and the more we see the more confused we become.

One rule we had, that the posterior tumors are neurofibromas and the anterior tumors are dermoids, does not always hold as shown by this case and others; so we have not even that rule to go on.

Preoperative Diagnosis

Tumor of the mediastinum.

Dr. John D. Stewart's Diagnosis

Mediastinal dermoid.

Pathologic Diagnosis

Neurofibroma of the mediastinum.

Pathologic Discussion

Dr. Tracy B. Mallory: When Dr. Churchill operated on this patient he found that the tumor in spite of the x-ray appearance actually arose in the posterior mediastinum. A relatively long pedicle came out from behind the great vessels and projected anteriorly; so that the inference drawn from the location proved entirely wrong. It was a well encapsulated, firm, hard mass with a fairly narrow pedicle which it was possible to cut across and the tumor was dissected out without too much difficulty.

Histologically it is a fibromatous tumor. I would personally have a good deal of difficulty in saying positively from the microscopic slides alone that it was of neurogenic origin; but what we know in general about these tumors of the posterior mediastinum makes it extremely probable that it did arise from one of the nerves in that region.

CASE 22352

Presentation of Case

A forty-nine year old practical nurse was admitted complaining of dyspnea and hoarseness.

The patient stated that she had been short of breath for as far back as she could remember. Associated with this dyspnea she frequently noted palpitation and skipped heart beats. About eight months before coming to the hospital she had a series of chest colds associated with a nonproductive cough, malaise, lassitude, and hoarseness. The latter was the most persistent symptom. When these acute episodes subsided two months ago she noted that her shortness of breath was rather markedly increased and that the hoarseness continued. The dyspnea was described as inspiratory in character. Five months before entry in the course of an examination she was found to be anemic and given iron therapy. Inhalations for her dysphonia were unavailing. One and a half months prior to admission while leaning over a table she first became conscious of a deep dull aching pain in the midsternal region. Subsequently the same sensation was noted over the right lower chest posteriorly, the right midscapular region, and over the right breast. Lassitude, hoarseness, and difficulty in "filling her lungs with enough air" persisted. There was loss of twelve pounds in weight in eight months.

Physical examination showed a well-developed and nourished woman in no discomfort. There was dulness to flatness of the right lower chest anteriorly and posteriorly. The breath sounds in the right lower chest posteriorly were di-

minished. No râles were heard. The left diaphragm did not appear to descend so well as the right. No other significant chest signs were elicited and the remainder of the examination was negative. The blood pressure was 140/80.

The temperature, pulse, and respirations were normal.

Examination of the urine was negative. The blood showed a red cell count of 4,400,000, with a hemoglobin of 80 per cent. The white cell count was 10,000, 68 per cent polymorphonuclears. The basal metabolic rate was minus 9.

X-ray examination showed the diaphragm in normal position and exhibited unimpaired respiratory movement. The medial portion of the right lower lung field was occupied by a sharply defined ovoid mass, measuring about 13 centimeters in length and 9 centimeters in width. The lateral view showed the mass to lie anteriorly, immediately behind the anterior chest wall, the depth of the mass being about 8 centimeters. Its margin was slightly lobulated. The lower portion of the mass touched the diaphragm. There were a few areas of calcification in the right hilus but there was no definite evidence of calcification in the mass itself. Fluoroscopy showed no pulsation of the mass, nor were there any changes in its size or shape during respiration. The outline of the right side of the heart was obliterated by the large shadow but the left border showed no variation from the normal. The right lower lung field beyond the mass was slightly less radiant than the opposite side, but the upper lung field was somewhat brighter than the left side. The septum between the upper and middle lobe was slightly displaced downward.

On the third hospital day an operation was performed.

Differential Diagnosis

Dr. Alfred Kranes: Will you demonstrate the x-rays, Dr. Holmes?

Dr. George W. Holmes: The outline of the mass as you can see is very sharp. This is thickening a little along the interlobar septum. Certainly there are no calcified masses in the tumor itself. I can see no evidence of erosion of the ribs. The diaphragm moved fairly well as stated in the note. There is no free fluid in the pleural space. The heart is not displaced, neither is the trachea.

Dr. Kranes: Is there collapse of the middle lobe on the right side?

Dr. Holmes: I am not quite certain of the outlines of the middle lobe on the right. There is certainly thickening along the interlobar septum which is difficult to explain.

Dr. Kranes: The report states that the upper lobe septum was slightly displaced downward. I thought that might signify some collapse of the middle lobe.

Dr. Holmes: I would not be at all certain. I should think there would be more interference with expansion, if this were an external tumor pressing on the lung root, and in that way causing the collapse. I think that might be a possibility but we have very little evidence, unless we assume that the thickening represents the collapsed lower lobe rather than thickening in the septum itself.

Dr. Kranes: In other words, we have almost the identical problem here that we had in the previous case, except for the situation of the tumor mass. And I do not know that I can do much more than Dr. Stewart has already done in differential diagnosis. He has gone through practically the whole list of tumors that could conceivably give this type of picture. I suppose it would be just as well for me to choose one from that list and hope for the best.

In brief, we have a patient with an eight months' story of respiratory difficulty, dyspnea, hoarseness, cough, pain in the chest, a physical examination which is consistent with atelectasis of the lower portion of the right lung and an x-ray report which says there is a large tumor mass lying anteriorly in the right lower portion of the lung, perhaps causing some atelectasis of the right middle lobe, with downward displacement of the interlobar septum. The discussion therefore boils down to just what the nature of that mass is.

Is it neoplastic and, if so, is it benign or malignant, primary or metastatic? The same problem we had in the last case. Could it be inflammatory; and, if so, just what is the inflammatory agent? Or could it be an aneurysm?

Assuming that the Hinton is negative, and because of the location of that tumor, I should think an aneurysm would be extremely unlikely. It would have to arise from the descending aorta and push itself forward anteriorly, a very unlikely occurrence; so I think we can safely rule out aneurysm. As far as inflammatory diseases go, the absence of chills, fever, or leukocytosis, and the involvement of mediastinal structures causing hoarseness almost certainly rule out the more common pyogenic infections such as abscess or encapsulated empyema; and so far as the more chronic granulomatous lesions go, such as tuberculosis and syphilis, I should think they also would be extremely unlikely. Echinococcus cyst could conceivably cause that picture but because of its rarity I am going to forget about it. So that leaves us with the more probable diagnosis that this mass is neoplastic. That is as far as we can safely go. Regarding the nature of the neoplasm, we can only speculate.

There is not very much in the history to make us decide whether it is benign or malignant. I think the x-ray appearance, the very

sharp smooth outline, is probably more consistent with a benign than a malignant tumor. The fact that a mass that size, if malignant, does not cause more in the way of obvious x-ray signs of collapse is probably against malignancy. On the other hand, in the history we have lassitude, malaise, loss of twelve pounds in weight, and signs of a moderately rapidly growing tumor, so that we can put up a fairly good case for both types.

Of the benign tumors in this particular area I think dermoid or teratoma is the most likely possibility, as Dr. Stewart has already said, being in the anterior mediastinum. This one can conceivably have a long pedicle and arise from some other location but it is not very obvious in the x-ray at any rate. I will assume, therefore, that it is in the anterior mediastinum and place dermoid as the first choice. It could also be a neurofibroma. They have been described in the anterior mediastinum but they are relatively uncommon in either place, and much more uncommon in the anterior mediastinum. I think that substernal goiter also has to be definitely considered here, although the situation is very unusual for a substernal thyroid and yet aberrant thyroid tissue has been found in that region. They probably suspected something of the sort when they did a metabolic rate. The fact that it was normal does not influence us one way or the other. Most of them are nontoxic anyway.

Of the malignant tumors carcinoma is by far the most common. If this were malignant it probably would be that, and yet it does not look very invasive, nor does it cause very much in the way of collapse as you would expect if it arose from the bronchus. The other malignant tumors, sarcomas and lymphomas, are also possibilities but I think quite improbable. There were no other signs of lymphoma, such as glandular enlargement, and no mention of a palpable spleen. I should think it would be rather unusual for a lymphoma to cause this particular picture. A sarcoma I think we cannot exclude.

I will guess that it is a benign mediastinal tumor causing pressure on the mediastinum and recurrent laryngeal nerve, producing hoarseness, and probably some pressure on the outside of the right lower or middle lobe bronchus on the right, with some atelectasis, and that it is probably a mediastinal dermoid with the possibility of substernal thyroid and neurofibroma to be borne in mind.

Dr. Holmes: This film was taken after operation and rather confirms Dr. Kranes's statement that the middle lobe was collapsed. I think it looks more like collapse than adhesions.

We reviewed these cases in the x-ray room not long ago and reached the same conclusion as Dr. King, that it is almost impossible to state the nature of the tumor from x-ray examination. We did think we could differentiate infections from tumors. Encapsulated fluid is usually seen in the posterior, not the anterior, part of the chest. I do not remember having seen an actual encapsulation in the anterior part. We have missed one or two of the cold abscess type of case, but in most of the cases we have been successful in differentiating infections and tumor. When we try to separate the malignant from the benign tumor, our success is not great. The benign tumors are less likely to cause interference with the passage of air into the lung, are likely to have pretty sharp outlines, and can be shown to grow slowly.

A Physician: This patient had cough and inspiratory dyspnea and it is possible that they may have found something by bronchoscopy.

Dr. Tracy B. Mallory: She had been fairly well worked up in another hospital but we have no complete record of their findings. I think it is safe to assume, however, that bronchoscopy was done and was negative and that the Wassermann was negative.

Preoperative Diagnosis

Tumor of the mediastinum.

Dr. Alfred Kranes's Diagnoses

1. Dermoid cyst.
2. Neurofibroma.
3. Substernal thyroid.

Pathologic Diagnosis

Mediastinal goiter.

Pathologic Discussion

Dr. Mallory: Dr. Churchill found a well encapsulated tumor mass sitting absolutely on the diaphragm and nosing up against the lateral wall of the pericardium. It had a very long pedicle which extended upward as far as he cared to go. He cut across that and resected the tumor which turned out to be a large colloid goiter. I think none of us had ever realized that a goiter could reach the diaphragm.

The discussions of Dr. Stewart and Dr. Kranes have clearly brought out the fact that the location of a mediastinal tumor is almost the only clue in many instances to its character. How fallible deductions based on this evidence may be is clearly shown by the two cases which have been presented. Each tumor grew from a very long pedicle and neither arose anywhere near the site where it was finally visualized by x-ray examination.

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PNEUMONIA CONTROL

IT is with no desire to be unfriendly nor are we lacking in high regard when we permit ourselves to wonder if one of our most distinguished neighbors has not been unmindful of the notable achievement of Massachusetts in initiating and carrying to successful completion a movement directed to the control of lobar pneumonia.

In the July twentieth issue of the esteemed *Health News* of the New York State Department of Health we were somewhat amazed to read an abstract of an address given at the Annual Conference of Health Officers and Public Health Nurses at Saratoga Springs, June 23, 1936. The final paragraph of the abstract reads as follows:

"The New York State pneumonia control program seems to me unique since it represents a co-operative effort participated in by the medical and nursing professions, public health officials, and laboratory staffs, all working toward a common end, the reduction of mortality from pneumonia. It is to be hoped that we can look upon this program as a turning point in the struggle to overcome diseases of the respiratory tract just as we can look back upon accomplishments in preventing acute intestinal infection."

From all that we have learned the purpose of the New York effort has much to commend it, and with its eminent leaders and generous financial support it should justify its present promise. However, we are wholly unable to grant that the New York program is in any way unique or that it may be looked upon as a turning point in the struggle to overcome diseases of the respiratory tract. The word and the phrase are more accurately descriptive of the Massachusetts Pneumonia Study and Service which last December completed its fifth year of existence.

We have had frequent occasion to record on our pages the aims, plan, progress, and accomplishments of the Massachusetts program, and we have been so deeply impressed by the originality and thoroughness of the study and of the benefits accruing from the endeavor that we expressed our appreciation in our issue of March 5, 1936, page 489.

We confess that we are jealous—and we think justly so—of the foresight, the intelligence, the enterprise, and the success of our State Public Health Officers in presenting to other states an example of a sound method for studying and controlling lobar pneumonia. The example is being followed in more or less modified form by Connecticut, Maine, Michigan, and now New York.

As in so many projects designed for the common weal, Massachusetts can be rightly looked upon as the pioneer in an organized attempt to bring pneumonia under control. We wish New York and the other states all success in their undertaking, but we stoutly maintain that any laurels for the conception and prior operation of such a program belong to Massachusetts.

THE DISTRIBUTION OF MEDICAL SERVICE IN MASSACHUSETTS

THE fourteenth edition of the American Medical Directory accounts for 165,163 physicians in the United States. This is roughly one physician for each 700 people throughout the country. Among the New England States four have more people per doctor and two have less than this figure for the country as a whole. Specifically; Maine has 832, New Hampshire has 793, Rhode Island has 763, Vermont has 717, Connecticut has 688, and Massachusetts has 597 people to support each physician. Only ten years ago there were approximately 670 people for each doctor in Massachusetts, there having been an increase of 17 per cent in the number of doctors with an increase of less than 5 per cent in the population as a whole during the past decade.

In spite of the present crowding of physicians in the State, the towns of less than 5,000 population still provide 406,168 people for 370 physicians—a ratio of one physician for each 1098 people. On pages 412-418 of this issue the *Journal* presents a survey of these Massachusetts towns. Eighty-four of them, with a total population of 80,399, are without doctors. Of the 370 physicians in the one hundred and forty-eight remaining towns, 109 are less than forty years old, 136 are between forty and sixty, and 125 are over sixty years of age.

Of course, the eighty-four towns without doctors are not without medical service; many of them are conveniently adjacent to communities which are well supplied with doctors; all of them are probably on roads which are passable for automobiles throughout the year. Most of them would nevertheless welcome a well-trained doctor of their own. More than half of them are over 500 population and nearly one third of them are over 1000. There is one town of more than 4000 in which there is apparently no resident physician. There are nineteen towns of more than 2,000 with but one resident physician. Whether the openings which are here suggested are merely paper opportunities can only be determined by individual investigation. Many of them must be real.

We do not wish to wax emotional about the good old days, nor need we rehearse a comparison of city with rural life; these are largely expressions of temperament. It is plain that the doctor in the town of less than 5,000 has twice as many people to care for. They need but pay him half as much to allow him the income of his brother in the city. He may have to work twice as hard to earn it, but he knows full well that there is economic opportunity, if not gold, in "them hills". He may also be cheered to know that city dwellers statistically lead shorter lives and more frequently must call upon charity to eke out their incomes.

Why, if these things are so, do those of us who perennially complain about "collections" stay in the city? For years we have crowded ourselves under the influence of cultural and educational opportunity. It is altogether appropriate that cultural and educational agencies should now encourage a return to those places where we are needed and presumably wanted. For six years Tufts College Medical School, with the aid of the Commonwealth Fund of New York, has been providing liberal fellowships for undergraduates who will agree, after school and hospital graduation, to practice in the country for a period of at least three years. The chances appear to be good that economic forces will tempt them to stay for longer periods.

THE UNDERWRITERS BUREAU

Dr. Begg, Secretary of the Massachusetts Medical Society, has been appealed to for information respecting The Underwriters Bureau with headquarters in Kansas City.

According to statements submitted by the doctors who have been interviewed by representatives of the Underwriters Bureau, the plan is to collect fifteen dollars, covering a two years' period, from two doctors in a given city and, in return for this payment, the names of the two contributing doctors will be listed in a publication and subject to call for examinations of automobile accident cases or other indemnities. The name of the solicitor in one instance is T. B. Leeper. The Boston Better Business Bureau reports that the Underwriters Bureau is a trade name used by J. N. Joerger and Martin Coughlin, Jr., co-partners. These men state, according to the Boston Better Business Bureau, that the trade name has been registered with the Missouri Secretary of State. In 1935, the subject published its first legal directory containing the names of attorneys, their addresses, references, and so forth. This directory, according to the Underwriters Bureau, was mailed to the home offices of 2,000 insurance companies. The directories were sent to the insurance companies unsolicited, without charge.

In 1935, the subject also compiled the first edition of a medical directory, which was sent unsolicited to life, health, accident, and indemnity insurance companies.

We are informed a charge of $15 is made to attorneys and physicians for listings. The subject states it does not guarantee that any benefit will accrue to the person whose name is listed in the directory. According to the company, each person paying for a listing will be furnished a printer's proof of his individual listing, but will not receive a copy of the directory. The Bureau is now soliciting listings for 1936 editions of medical and legal directories.

The legal directory to date has not been approved by the Advisory Committee of the Missouri Bar.

Information from other sources tends to indicate that this movement is widespread and doctors in many places have been interviewed by these solicitors.

It is difficult to estimate the value of the contribution of fifteen dollars for this purpose by doctors. Certainly any physician of standing would want to know with whom he is to be associated in making reports of examinations.

The information available thus far does not warrant the expression of an opinion which will be of any value to physicians. We do not see that there is any assurance of financial benefit resulting from this form of advertising.

CANCER STUDIES

In Relation to Results of Treatment with an Aqueous Extract Made from the Cortex of the Suprarenal Gland

A tribute to the innate common sense and conservatism of the medical profession is seen in the quiet disregard of the recent article by Coffey and Humber[1] summarizing their own evaluation of their recently widely publicized adrenal cortical treatment for cancer.

This report is based on 7513 cases, supposedly of inoperable and hopeless malignant disease. The authors state that at least thirty injections of the extract are needed before any beneficial results can be expected, although pain may be relieved earlier in many cases. The requisite number of injections were received by 1040 cases. Of these, 10.5 per cent are alive five years after being admitted to the clinics, and 5.1 per cent alive five years without clinical evidence of malignancy. From the natural course of the disease in cases which have had previous treatment of orthodox type, as had many of these cases, not dissimilar results may be expected with merely supportive treatment.

It is significant that the best results with the treatment were obtained from the psychological angle. The authors state that 75.5 per cent had improved sense of well-being and 65.3 per cent had their pain greatly relieved.

The data presented do not impress the reader that an important contribution to cancer therapy has been made.

REFERENCE

1. Coffey, Walter B., and Humber, John D.: California & West Med. **44**:5, 1936.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Poston, Mary A. Assistant in Biology, Laboratory of Johns Hopkins Hospital 1922-1930. Assistant in Bacteriology, Duke Hospital, 1930-. Address: Duke Hospital, Durham, N. C. Associated with her is

Smith, David T. A.B., M.D. Johns Hopkins University School of Medicine 1922. Assistant in Pathology and Bacteriology, Rockefeller Institute, 1923-1924. Bacteriologist, Pathologist and Director, Research Laboratory of New York State Hospital for Tuberculosis, Ray Brook, New York, 1924-1930. Bacteriologist and Associate Physician, Duke Hospital, 1930-. Address: Duke Hospital, Durham, N. C. Their subject is Successful Treatment of Brucella Meningitis with Immune Human Serum: Isolation of the Organism by a Modified Cultural Method. Page 369.

Taylor, Grantley W. A.B., M.D. Harvard University Medical School 1922. F.A.C.S. Assistant Surgeon, Massachusetts General Hospital. Consulting Surgeon, Massachusetts Eye and Ear Infirmary. Surgeon to Out-Patients, Palmer Memorial Hospital. Surgeon, Collis P. Huntington Memorial Hospital. Visiting Surgeon, Pondville Hospital and Good Samaritan Hospital. Assistant in Surgery, Harvard University Medical School. His subject is Fundamentals in the Cancer Problem. Page 383. Address: 264 Beacon Street, Boston, Mass.

Gonzales, Thomas A. M.D. Bellevue Hospital Medical College 1898. Acting Chief Medical Examiner, New York City. His subject is The Needs for Improvement in Medicolegal Investigations. Page 385. Address: 56 E. 87th Street, New York City.

Buffum, William P. A.B., M.D. Harvard University Medical School 1913. Visiting Pediatrician, Providence Lying-In Hospital. Visiting Physician, Pediatric Service, Rhode Island Hospital. His subject is Anoxemia in Premature Infants, A Clinical Study. Page 390. Address: 122 Waterman Street, Providence, R. I.

Hudson, Ellis H. M.D. University of Pennsylvania School of Medicine 1919. Recently resigned on completion of fourteen years' medical missionary work in Syria. His subject is Mucocutaneous Syphilis (Bejel) in Syria. The Results of Dark Field Examination. Page 392. Address: 10 Blantyre Terrace, Edinburgh, Scotland.

Eastman, Oliver N. M.D. University of Vermont College of Medicine 1908. F.A.C.S. Associate Professor of Obstetrics, University of Vermont College of Medicine. His subject is Hysteroptosis. Page 396. Address: Burlington, Vermont.

MISCELLANY

CONNECTICUT NEWS

The Wassermann Test and Marriages

Since Connecticut's law requiring blood tests before marriage went into effect last January, weddings in the state have dropped to approximately half the number that there were before.

The State Department of Health figures show that during the first five months of the year, from January through May, 1813 marriages were performed in Connecticut. In the same five months of 1935 there were 3,468 couples wed. This is a drop of more than 47 per cent.

The marriage law requires both the man and woman applying for a marriage license to present a doctor's certificate showing that the applicant has submitted to a blood test for syphilis and that the reaction has been negative. The specimens of blood may be examined in any laboratory approved for that type of work by the Health Department, and

only a part of the specimens go to the department's own laboratory in Hartford.

The sharpest decline in marriages has been in the border towns, indicating that fewer people are coming into Connecticut from other states to marry. The Health Department has no figures yet to indicate how many Connecticut people are going outside the state to marry this year. Information from other states will be secured after the law has been in effect longer.

Changes in Hartford's Board of Health

Dr. George E. Cogan, vice-president of the Board of Health of Hartford, was recently elected president to succeed Dr. Robert V. Boyce who resigned July 1. Dr. Cogan has been a practicing physician in Hartford for ten years, specializing in gynecology. He is attending gynecologist and associate obstetrician on the staff at St. Francis Hospital. He graduated from Georgetown University with a bachelor of science degree, and received his doctor of medicine degree at the same university. He served as interne at Columbia Hospital for Women, and Georgetown University Hospital in Washington, D. C., at Bellevue Dispensary in New York, and at St. Francis Hospital, Hartford. Dr. Cogan is a Fellow of the American College of Surgeons and a diplomat of the American Board of Obstetrics and Gynecology.

To fill the vacancy on the Board of Health produced by the resignation of Dr. Boyce, Mayor Spellacy has appointed Dr. Charles W. Daly, a practicing physician in Hartford for more than twenty-five years. Dr. Daly was born in Hartford in 1883 and attended the St. Joseph's School and the Hartford Public High School. He received his medical degree from the University of Maryland in 1910 and then served as interne at St. Francis Hospital, Hartford until 1919, when he took up graduate work in internal medicine at Bellevue Hospital, New York, and at the New York Post-Graduate Hospital. Dr. Daly is well known as an amateur horticulturist, having a large flower garden at his home.

Dr. Samuel Green, health officer of Southbury, has presented the Hartford Board of Health with the certificate issued by the Common Council in 1878 appointing his father, the late Dr. George S. Green, a member of the Hartford Board of Health.

Social Service Costs in Hartford

According to the Federal Census Bureau, the per capita welfare cost in Hartford is about three times as great as in the average city of 100,000 to 300,000 population class. The bureau found expenditures for such work in Hartford aggregated $1,849,278 in 1934, or an average of $10.97 per resident. Only three cities surpassed Hartford in per capita outlay, Syracuse with an average of $14.01, Bridgeport with $12.82 and Yonkers with $12.00 per resident. This cost represented in Hartford an increase from $1.60 in 1926 to $10.97 in 1934. The Social Security Board must catalogue every worker in the state eligible to participate in the Federal Social Security program.

Accidental Deaths

During the year 1935 there were 17,355 deaths in Connecticut due to all causes. This total includes 1,255 deaths due to accident in some form, or 7.2 per cent of the total mortality.

Deaths due to occupation make up only 4.4 per cent of the total deaths; home accidents account for 27.9 per cent; motor vehicle accidents contribute 39.2 per cent of all, and deaths due to accidents in public places appear in 28.5 per cent, of all accidental deaths. Accidental deaths therefore, due to automobile accidents, contributed substantially more than any other classification.

Analyzing the various classes, of all accidents which occur in the home, falls account for 67 per cent or two-thirds. Conflagration, burns and explosions contribute about 15 per cent of all the accidental deaths occurring in the home. Motor vehicles appear in 491 accidental deaths. Of this total, 55.8 per cent were pedestrians. The next largest group is collision with other motor vehicles and this accounts for about 17 per cent of all motor accidents. The astonishing total of 274 pedestrians met their death in collision with a motor vehicle.

Annually the list of accidental deaths will include some familiar causes. In 1935, no less than five persons met death from accident by smoking in bed.

Sewage Treatment in Connecticut

It is gratifying to record the progress Connecticut municipalities are making in cleaning up Connecticut's waters. At the same time there are some large sources of pollution that should be eliminated.

The four largest communities in the state are Hartford, New Haven, Bridgeport and Waterbury. The Hartford Metropolitan District now has under construction a new sewage treatment plant which provides for sedimentation of the sewage of the district before discharge into the Connecticut River except at high river stages when large dilution is available. This plant and various intercepting sewers will cost approximately $3,500,000. New Haven has constructed a sedimentation and chlorination plant for the East Street district which is estimated to treat about 40 per cent of the city's sewage but the city is still faced with the problem of treating the sewage for the remainder of the city in order to clean up polluted New Haven Harbor. Bridgeport has built two sewage screening plants at Bostwick Avenue and Congress Street which help to relieve local nuisance conditions in the vicinity of these outlets but which do little to remove the pollution load upon Bridgeport Harbor. Bridgeport is now undertaking a preliminary survey to determine feasible and economical methods of meeting the city's sewage disposal problem which it is hoped will produce results. The city of Water-

bury discharges its sewage into the Naugatuck River without treatment, although progress has been made of late in the building of trunk sewers in the city which further the sewerage program. New Britain, fifth city in the state, is now constructing a chemical precipitation plant for the treatment of its sewage before discharge into the Mattabesset River, a relatively small tributary of the Connecticut. Stamford, the next largest city, has a sedimentation and chlorination plant which is in some need of enlargement.

Of the smaller cities, Meriden has a large sand filter plant in need of modernization and enlargement to handle high flows. Norwalk has a screening, sedimentation and chlorination plant which does an effective job of treatment in protecting the bathing and shellfish areas. Greenwich has four satisfactorily operated sewage treatment plants, one of which is in need of enlargement. Norwich is now constructing a plant to serve one portion of the city. New London has an effectively operating sedimentation and chlorination plant for one small section of the city but still has work before it to improve sewage disposal conditions along the shore. Bristol has a satisfactorily functioning sand filter plant and Danbury is now enlarging and improving its disposal plant to provide trickling filter treatment for the screened and settled sewage. The plant has been extended considerably in the recent past in addition to the present construction. Torrington is now constructing a sedimentation plant. West Haven has finally completed plans for rebuilding the Blohm Street plant with new sedimentation tanks, seasonal chemical precipitation and chlorination, and it is expected that this work will go forward this year. A force main is now being constructed to eliminate the sewage discharge at the Prospect Beach plant and bring it to Blohm Street. West Hartford's sewage is discharged into the Hartford system where treatment is being provided. Middletown is now constructing a sewage treatment plant of the sedimentation type. Manchester has in the south part of the town a sedimentation plant somewhat in need of enlargement and the plants in the north part of Manchester need to be replaced by a modern treatment plant.

In communities below the 20,000 population class, there is a considerable number of public sewage treatment plants, notably in Canaan, Lakeville, Litchfield, New Canaan, Norfolk, Ridgefield, Rockville, Southington, Stratford, Wallingford and Watertown. Most of these plants do an effective job of treatment. Sewage disposal along the shore is especially important because of bathing areas and shellfish grounds. It is not a satisfactory situation when we consider that among the larger shore cities and towns, only Norwalk and Greenwich are in a good position. Stamford and Stratford are not in the worst category but need improvements. West Haven and Milford are making progress. Bridgeport and New Haven are major pollution offenders with several other small communities needing betterments. It is pleasing to record that a commission recently organized in the Bridgeport area is studying the pollution abatement problem and it is hoped that the long-looked-for improvement in this area will shortly go forward. The shore communities should become alive to the situation and conserve their bathing and shellfish areas. Outstanding among the large interstate rivers where sewage treatment plants are under way is the Connecticut River. East Hartford represents the sole remaining large community along the river where a large volume is discharged without any corrective measures under way, although Windsor, Windsor Locks, and two or three other small communities discharge some pollution into the river in Connecticut. On the immediate tributaries, such as the Hockanum River, Manchester settles most of its sewage and Rockville sewage is settled. A great deal of pollution reaches the Connecticut River in the northerly states, notably Massachusetts. It is hoped that progress may be made by means of interstate compacts to reduce the river pollution outside of the state limits. In Connecticut and the states to the north, commissions have been appointed to consider pollution abatement measures on an interstate scale.

Bridgeport and New Haven are striking examples of large scale serious pollution sources needing correction to protect bathing beaches and conserve shellfish areas. Several other shore communities need sewage treatment facilities, as mentioned. Greenwich and Norwalk, with the shortly expected addition of Milford and West Haven, are pointing the way to desirable accomplishments.

Torrington is setting an example for the downstream communities along the Naugatuck River and the Housatonic River near the junction of the two rivers, including Thomaston, Waterbury, Naugatuck, Seymour, Derby, Shelton and Ansonia. Putnam and Norwich are cases of progress in eastern Connecticut. Interstate river pollution correction studies are under way. Substantial progress is being made on the Connecticut River watershed in Connecticut. Public support is needed to force the installation of necessary additional sewage treatment plants and also to provide the necessary funds and qualified personnel to operate these plants effectively. The protection of our bathing beaches, shellfish areas and possible future water supply streams, the avoidance of nuisance conditions, and the conservation of our natural resources, all demand this. City governments, naturally reluctant to undertake expenditures for new undertakings, even when for the public good, can be heartened to do so with encouragement from the public.

Connecticut State Cancer Program

A plan for organization of a Connecticut State Cancer Program has been adopted by the State Medical Society, working in conjunction with the State Department of Health. The various ramifications of this plan can be briefly defined, as follows:

The State Medical Society yearly appoints a State Tumor Committee whose duties are the following:

To study the cancer problem in the State of Connecticut.

To combat the disease with the most up-to-date methods available.

To accomplish this, the State Tumor Committee has in turn appointed two active Committees, namely, a Publicity Committee and a Scientific Committee. The duties of the Publicity Committee are as follows:

1. To educate the public that cancer is curable if adequately treated in its early stages.

2. To educate the doctors to the necessity of making a complete and thorough physical examination.

3. To preach the value of periodic examinations to the public.

4. To draw up a list of speakers who would be available for addresses before lay and medical organizations.

5. To write articles for the education of the public and doctors.

The functions of the Scientific Committee are the following:

1. To keep the doctors well informed as to the most up-to-date methods of curing and combating malignant disease.

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1935 AND SEVEN YEAR AVERAGE

MONTH ENDING AUGUST 15, 1936

	1936					1935			
Diseases	Week ending July 25	Week ending Aug. 1	Week ending Aug. 8	Week ending Aug. 15	Average cases reported for week corresponding to Aug. 15 for past seven years	Week ending July 27	Week ending Aug. 3	Week ending Aug. 10	Week ending Aug. 17
Amebiasis	—	1	—	—	—	—	—	—	—
Chickenpox	11	16	12	6	8	22	10	3	8
Conjunctivitis, Infectious	—	—	—	—	—	1	—	—	—
Diphtheria	—	1	1	1	7	9	2	2	4
Dysentery Bacillary	—	—	—	1	—	2	1	1	2
Encephalitis Epidemic	1	—	—	—	—	—	—	—	1
German Measles	15	11	7	3	—	14	5	5	9
Influenza	—	—	1	—	1	—	1	—	—
Malaria	—	—	—	—	—	—	—	—	1
Measles	32	14	16	10	26	68	35	26	15
Meningococcus Meningitis	—	—	3	—	—	1	1	—	1
Mumps	26	19	12	20	7	13	14	9	7
Paratyphoid Fever	1	—	—	—	—	—	1	12	5
Pneumonia (Broncho)	8	6	5	8	6	8	10	6	3
Pneumonia (Lobar)	17	5	12	9	5	4	5	4	3
Poliomyelitis	1	—	1	1	11	5	10	22	43
Scarlet Fever	7	9	8	8	9	15	8	11	8
Streptococcus Sore Throat	1	2	3	—	—	1	—	—	4
Tetanus	—	—	—	—	—	1	1	1	—
Trachoma	—	—	—	—	—	1	—	—	—
Trichinosis	—	1	—	—	—	2	—	—	—
Tuberculosis (Pul.)	33	24	24	17	30	17	29	38	20
Tuberculosis (O. F.)	4	1	2	1	3	3	2	3	1
Typhoid Fever	3	—	1	2	3	2	—	1	5
Undulant Fever	4	2	1	2	—	—	1	2	—
Whooping Cough	67	58	76	51	35	42	51	45	35
Gonorrhea	13	62	29	27	41	50	37	17	21
Syphilis	14	85	44	39	38	56	53	32	23

Remarks: No cases of Asiatic cholera, glanders, plague or yellow fever during the past seven years.

2. To see that Tumor Clinics, already established in the State, are kept up to a high standard.

3. To help other hospitals throughout the State to establish Tumor Clinics.

4. To suggest other plans of operation which might help in furthering the program.

The Scientific Committee has been instrumental in forming the Association of Connecticut Tumor Clinics. This Association is a separate organization, but the Chairman and Secretary are the Chairman and Secretary of the State Tumor Committee. The Association has appointed Committees on Therapy, Pathology and Records for the following purposes:

1. To exchange ideas.

2. To standardize clinic records throughout the State.

3. To clarify pathological nomenclature.

4. To consider problems concerning therapy treatment of cancer.

The State Department of Health, by act of the Legislature, has recently become a co-ordinating unit in this plan of organization. Functioning through the Bureau of Preventable Diseases are three major activities which may be defined as: statistical analyses of cancer mortality; tabulation and analysis of cancer clinic records and public education. This work is closely related to and dependent upon various activities of the State Tumor Committee. Acting as an integral unit, much has already been accomplished in spite of the fact that the broader aspects of this problem are sufficiently complex to warrant slow and gradual development.

Committee on Public Health, Connecticut State Medical Society

At the second session of the House of Delegates during the 144th Annual Meeting of the Connecticut State Medical Society, May 21, 1936, the following members were elected to serve on the Public Health Committee:

Joseph I. Linde, M.D., New Haven, Chairman (Pediatrics)

Louis M. Allyn, M.D., Mystic

Howard W. Brayton, M.D., Hartford (Pediatrics)

Ernest J. Caulfield, M.D., Hartford

A. Newell Creadick, M.D., New Haven (Obstetrics and Gynecology)

John S. Dye, M.D., Waterbury

Joseph H. Howard, M.D., Bridgeport (Obstetrics and Gynecology)

Louis O. LaBella, M.D., Middletown

James R. Miller, M.D., Hartford (Obstetrics and Gynecology)

Oliver L. Stringfield, M.D., Stamford (Pediatrics)

W. Bradford Walker, M.D., Cornwall.

At this meeting, the Council recommended, in accordance with those recommendations contained in Report of the Committee on Public Health, that the House of Delegates, in the name of the Connecticut State Medical Society, shall hereby record its approval of and recommend procedure in accordance with the Act of the 1935 Legislature (Section 929c, Cumulative Supplement to the General Statutes, January Sessions, 1931, 1933, 1935, State of Connecticut), whereby Sanitary Districts with full-time medical Health Officers may be formed; and further shall direct that a copy of this approval and recommendation be transmitted to the State Commissioner of Health for use in efforts to secure the formation of such Sanitary Districts.

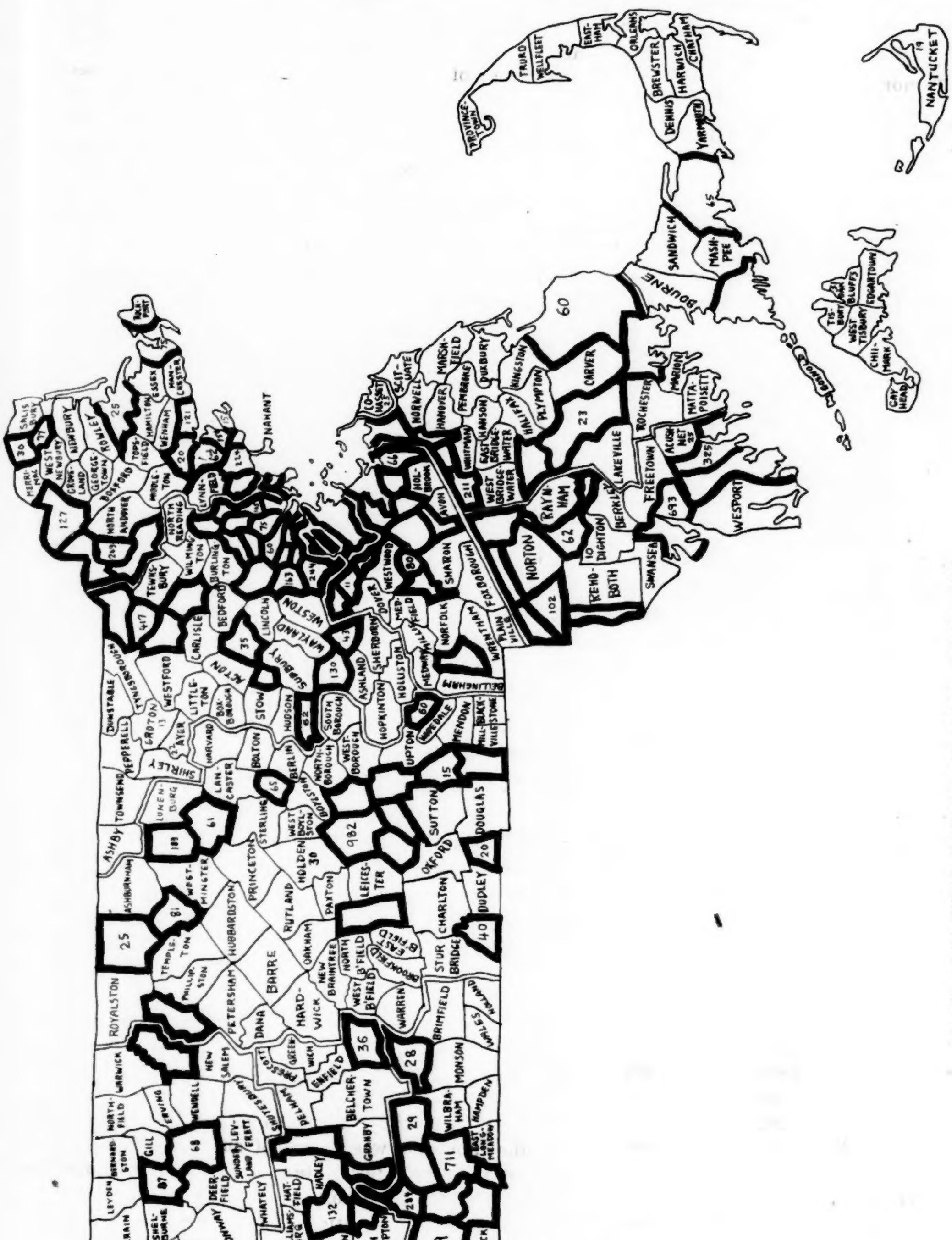
The House of Delegates voted to adopt this recommendation of the Council, and thereby, in the name of the Connecticut State Medical Society, voted to record approval of and to recommend procedure under the Sanitary Districts law, and to approve still further this action and recommendation by the State Department of Health.

THE DISTRIBUTION OF DOCTORS IN SMALLER COMMUNITIES OF MASSACHUSETTS

In the following table there are listed, by counties, the townships in Massachusetts of less than 5,000 population, according to the 1935 Decennial Census of the Commonwealth. With each township there are also listed the number of people per doctor, and the number of doctors, by ages, according to the fourteenth edition of the *American Medical Directory* published in June, 1936. This material is intended to provide information concerning the distribution of doctors in the smaller communities of Massachusetts, and it is hoped that it may be of assistance in the selection of locations within the Commonwealth for younger men.

Doctors were not included in the table when data were available that they were either "retired" or "not in practice", or when the tabulator knew that certain doctors were not in practice in the towns in which they were listed as residents. Of course the tabulator was aware of such local situations in comparatively few instances, and there are doubtless a considerable number of inaccuracies which our sources of information cannot correct at the present time. In certain townships (marked with an asterisk *) the figures for both the population and the number of doctors have been corrected to exclude those resident in institutions situated within the town lines. Figures are thus produced which more accurately suggest what the local supply and demand for medical service might be.

The assistance of the several District Medical Societies is solicited in the correction of these figures whenever changes take place. Reports should be sent to *The New England Journal of Medicine* promptly.



MASSACHUSETTS TOWNS OF LESS THAN 5,000 POPULATION.

Numbers Indicate Beds in General Hospitals Registered by American Medical Association.

Towns of more than 5,000 are bounded by heavy lines. Towns under 5,000 are bounded by narrow lines. Counties are bounded by double lines.

	Population by 1935 Census	No. of People per Doctor	Doctors by Age: Under 40	40-60	Over 60
		Barnstable County			
Bourne	3,336	477	3	2	2
Brewster	715	715	—	—	1
Chatham	2,050	682	2	—	1
Dennis	2,017	671	—	2	1
Eastham	606	—	—	—	—
Harwich	2,373	382	1	3	2
Mashpee	380	380	1	—	—
Orleans	1,425	285	1	2	2
Provincetown	4,071	809	—	3	2
Sandwich	1,516	758	—	1	1
Truro	541	—	—	—	—
Wellfleet	948	474	—	1	1
Yarmouth	2,095	1,047	—	1	1
Total	22,073	Average 596	Total 8	15	14
		Berkshire County			
Alford	210	—	—	—	—
Becket	723	—	—	—	—
Cheshire	1,660	1,660	—	1	—
Clarksburg	1,333	—	—	—	—
Dalton	4,282	1,427	1	—	2
Egremont	569	—	—	—	—
Florida	405	—	—	—	—
Hancock	408	—	—	—	—
Hinsdale	1,144	572	1	1	—
Lanesborough	1,237	—	—	—	—
Lee	4,178	696	2	4	—
Lenox	2,706	1,353	1	1	—
Monterey	325	—	—	—	—
Mount Washington	64	—	—	—	—
New Ashford	94	—	—	—	—
New Marlboro	921	921	—	1	—
Otis	415	207	2	—	—
Peru	151	—	—	—	—
Richmond	628	—	—	—	—
Sandisfield	471	—	—	—	—
Savoy	299	299	1	—	—
Sheffield	1,810	—	—	—	—
Stockbridge*	1,871	624	3	—	—
Tyringham	243	—	—	—	—
Washington	252	—	—	—	—
West Stockbridge	1,138	569	1	1	—
Williamstown	4,272	534	3	3	2
Windsor	412	—	—	—	—
Total	32,221	Average 1,039	Total 15	12	4
		Bristol County			
Acushnet	3,951	—	—	—	—
Berkley	1,156	—	—	—	—
Dighton	3,116	3,116	1	—	—
Freetown	1,813	1,813	—	—	1
Norton	2,925	1,462	2	—	—
Raynham	2,208	—	—	—	—
Rehoboth	2,777	2,777	1	—	—
Swansea	4,327	1,442	—	1	2
Westport	4,355	2,177	—	2	—
Total	26,628	Average 2,663	Total 4	3	3

Dukes County

Chilmark	253	—	—	—	—
Edgartown	1,399	466	1	2	—
Gayhead	158	—	—	—	—
Gosnold	129	—	—	—	—
Oak Bluffs	1,657	828	2	—	—
Tisbury	1,822	364	1	4	—
West Tisbury	282	282	—	1	—
Total	5,700	Average 518	Total 4	7	—

Essex County

Boxford	726	726	1	—	—
Essex	1,486	372	1	2	1
Georgetown	2,009	502	1	1	2
Groveland	2,219	2,219	—	1	—
Hamilton	2,235	554	1	2	1
Lynnfield	1,896	—	—	—	—
Manchester	2,509	502	2	3	—
Merrimac	2,209	736	1	1	1
Middleton*	1,615	1,615	1	—	—
Nahant	1,748	581	1	2	—
Newbury	1,576	—	—	—	—
Rockport	3,634	727	—	3	2
Rowley	1,495	1,495	—	1	—
Salisbury	2,245	—	—	—	—
Topsfield	1,113	556	—	—	2
Wenham	1,196	1,196	—	1	—
West Newbury	1,475	1,475	—	1	—
Total	31,386	Average 872	Total 9	18	9

Franklin County

Ashfield	918	918	—	1	—
Bernardston	975	—	—	—	—
Buckland	1,540	385	2	1	1
Charlemont	923	923	—	1	—
Colrain	1,554	1,554	—	—	1
Conway	952	952	1	—	—
Deerfield	2,963	741	3	1	—
Erving	1,283	1,283	1	—	—
Gill	995	—	—	—	—
Hawley	308	—	—	—	—
Heath	368	—	—	—	—
Leverett	726	—	—	—	—
Leyden	253	—	—	—	—
Monroe	240	—	—	—	—
New Salem	443	—	—	—	—
Northfield	1,950	390	4	1	—
Rowe	277	—	—	—	—
Shelburne	1,606	—	—	—	—
Shutesbury	239	—	—	—	—
Sunderland	1,182	1,182	—	1	—
Warwick	565	282	1	—	1
Wendell	397	—	—	—	—
Whately	1,133	—	—	—	—
Total	21,790	Average 1,037	Total 12	6	3

Hampden County

Blandford	469	—	—	—	—
Brimfield	892	892	—	—	1
Chester	1,362	1,362	1	—	—
East Longmeadow	3,375	—	—	—	—
Granville	704	704	—	—	1
Hampden	854	—	—	—	—
Holland	201	—	—	—	—
Monson*	3,719	1,239	1	1	1
Montgomery	174	—	—	—	—
Russell	1,283	1,283	1	—	—
Southwick	1,540	1,540	1	—	—
Tolland	141	—	—	—	—
Wales	382	382	—	—	1
Wilbraham	2,969	1,484	1	—	1
Total	18,065	Average 1,642	Total 5	1	5

Hampshire County

Belchertown*	2,553	2,553	—	1	—
Chesterfield	445	445	1	—	—
Cummington	610	610	—	1	—
Enfield	495	495	—	—	1
Goshen	257	—	—	—	—
Granby	956	—	—	—	—
Greenwich	219	—	—	—	—
Hadley	2,711	1,355	—	1	1
Hatfield	2,433	811	1	—	2
Huntington	1,345	672	2	—	—
Middlefield	220	220	—	1	—
Pelham	504	—	—	—	—
Plainfield	332	—	—	—	—
Prescott	18	—	—	—	—
Southampton	954	—	—	—	—
Westhampton	405	—	—	—	—
Williamsburg	1,859	372	1	4	—
Worthington	530	530	—	—	1
Total	16,846	Average 936	Total 5	8	5

Middlesex County

Acton	2,635	527	—	1	4
Ashby	957	—	—	—	—
Ashland	2,497	2,497	—	1	—
Ayer	3,861	643	2	2	2
Bedford*	2,345	2,345	1	—	—
Boxborough	404	—	—	—	—
Burlington	2,146	—	—	—	—
Carlisle	688	688	—	1	—
Dunstable	419	—	—	—	—
Groton	2,534	845	1	2	—
Holliston	2,925	585	1	3	1
Hopkinton	2,616	1,308	—	1	1
Lincoln	1,573	231	—	3	3
Littleton	1,530	510	1	2	—
North Reading*	2,051	2,051	1	—	—
Pepperell	3,004	1,001	—	—	3
Sherborn	994	—	—	—	—
Shirley	2,548	2,548	1	—	—
Stow	1,190	—	—	—	—
Sudbury	1,638	1,638	—	1	—
Tewksbury*	3,136	—	—	—	—

		Middlesex County (Continued)			
Townsend	1,942	588	—	—	3
Tyngsboro	1,331	1,331	—	1	—
Wayland	3,346	836	1	—	—
Westford	3,789	1,263	—	3	—
Weston	3,848	641	1	2	—
Wilmington	4,493	2,246	2	—	—
Total	60,440	Average 1,162	Total 12	23	17
		Nantucket County			
Nantucket	3,495	Average 699	Total 2	3	—
		Norfolk County			
Avon	2,362	2,362	—	—	1
Bellingham	3,056	—	—	—	—
Cohasset	3,418	1,139	1	2	—
Dover	1,305	—	—	—	—
Foxborough*	4,557	759	—	2	4
Holbrook	3,364	1,682	—	1	1
Medfield*	2,326	775	2	—	1
Medway	3,268	817	3	—	1
Millis	2,098	2,098	1	—	—
Norfolk*	1,222	—	—	—	—
Plainville	1,606	1,606	—	—	1
Sharon*	3,683	1,841	1	—	1
Westwood	2,537	634	—	1	3
Wrentham*	2,271	2,271	—	—	1
Total	37,073	Average 1,324	Total 8	6	14
		Plymouth County			
Carver	1,559	1,559	—	1	—
Duxbury	2,244	449	1	1	3
East Bridgewater	3,670	1,223	2	1	—
Halifax	817	—	—	—	—
Hanover	2,709	677	1	1	2
Hanson*	2,277	2,277	—	1	—
Hull	2,619	873	2	1	—
Kingston	2,743	1,371	—	2	—
Lakeville	1,443	—	—	—	—
Marion	1,867	466	1	1	2
Marshfield	2,073	414	2	1	2
Mattapoisett	1,682	841	1	—	1
Norwell	1,666	—	—	—	—
Pembroke	1,621	—	—	—	—
Plympton	558	—	—	—	—
Rochester	1,229	—	—	—	—
Scituate	3,846	641	—	3	3
West Bridgewater	3,356	1,119	1	1	1
Total	37,979	Average 974	Total 11	14	14
		Worcester County			
Ashburnham	2,051	1,025	1	—	1
Barre	3,509	1,754	—	2	—
Berlin	1,091	—	—	—	—
Blackstone	4,588	—	—	—	—
Bolton	739	—	—	—	—
Boylston	1,361	—	—	—	—
Brookfield	1,309	1,309	—	1	—
Charlton	2,366	2,366	—	1	—
Dana	387	—	—	—	—
Douglas	2,403	2,403	—	1	—

Worcester County (Continued)

Dudley	4,568	2,284	—	—	2
East Brookfield	945	945	—	—	1
Hardwick	2,379	—	—	—	—
Harvard	952	476	—	1	1
Holden	3,914	783	2	1	2
Hopedale	3,068	1,534	1	—	1
Hubbardston	1,000	—	—	—	—
Lancaster	2,590	863	—	2	1
Leicester	4,426	885	1	2	2
Lunenburg	2,124	2,124	—	—	1
Mendon	1,265	—	—	—	—
Millville	1,901	—	—	—	—
New Braintree	436	—	—	—	—
Northborough	2,396	1,198	—	—	2
North Brookfield	3,186	796	1	1	2
Oakham	441	—	—	—	—
Oxford	4,249	1,416	1	1	1
Paxton	731	731	—	1	—
Petersham	718	718	—	1	—
Phillipston	423	—	—	—	—
Princeton	707	707	—	—	1
Royalston	841	420	1	1	—
Rutland*	1,352	—	—	—	—
Southborough	2,109	2,109	1	—	—
Sterling	1,556	778	—	—	2
Sturbridge	1,918	1,918	1	—	—
Sutton	2,408	2,408	—	—	1
Templeton*	4,302	2,151	—	1	1
Upton	2,163	721	1	—	2
Warren	3,662	1,221	1	—	2
Westborough*	4,557	1,519	1	2	—
West Boylston	2,158	2,158	—	1	—
West Brookfield	1,258	1,258	—	—	1
Westminster	1,965	1,965	1	—	—
Total	92,472	Average 1,532	Total 14	20	27

SUMMARY No. 1

County*	Total Population	Population of Towns Less Than 5,000	No. Towns Without Doctors	Population of Towns Without Doctors
Barnstable	36,647	22,073	2	1,147
Berkshire	121,099	32,221	17	9,335
Bristol	366,465	26,628	3	7,315
Dukes	5,700	5,700	3	540
Essex	504,483	31,386	3	5,717
Franklin	51,043	21,790	13	7,960
Hampden	333,495	18,065	6	5,214
Hampshire	74,205	16,846	8	3,645
Middlesex	958,855	60,440	7	9,246
Nantucket	3,495	3,495	—	—
Norfolk	320,826	37,073	3	5,583
Plymouth	166,329	37,979	6	7,334
Worcester	495,562	92,472	13	17,363
Total	3,438,204	406,168	84	80,399

*Suffolk County is omitted.

SUMMARY No. 2

Towns of Less Than 5,000 Arranged According to Number of Doctors and Population:

	0-500	500-1,000	1,000-2,000	2,000-3,000	3,000-4,000	4,000-5,000	Total
No Doctors	37	16	22	4	4	1	84
One Doctor	7	15	20	17	2	—	61
Two Doctors	1	4	8	9	4	4	30
Three Doctors	—	—	5	9	8	4	26
Four or More	—	—	8	10	8	5	31
Total	45	35	63	49	26	14	232

SEVEN STATES RECEIVE $5,000,000 FOR AID TO AGED FROM SOCIAL SECURITY BOARD

Grants totaling $5,087,990 to seven States with approved plans for assistance to the needy aged were announced August 18 by the Social Security Board. This allocation of Federal funds to match State expenditures dollar for dollar up to a combined total of $30 per month per person is for the period from July 1 to September 30. The States concerned—Connecticut, Illinois, Indiana, Massachusetts, Montana, New York, and Rhode Island—estimate that a total of 240,882 persons may require such assistance during this quarter year. Already 179,500 aged persons are receiving aid out of Federal-State social security funds in six of these States, according to the Bureau of Research and Statistics of the Social Security Board, and Montana, which began paying Federal-State old-age assistance in June, estimates that 6,909 aged will be eligible for aid through September 30.

The Social Security Board at the same time announced a grant of $53,683 to Indiana for assistance to the needy blind during the same period.

The grants announced today are as follows:

State	Federal Grant for: Aid to Aged	State Estimates of Number Who Will Require Aid
Connecticut	$324,540.30	10,000
Illinois	855,792.00	86,000
Indiana	624,467.49	42,000
Massachusetts	1,034,383.61	29,300
Montana	225,000.09	6,909
New York	1,958,376.00	64,065
Rhode Island	65,431.08	2,608
	$5,087,990,57	240,882
	Aid to Blind	
Indiana	$53,683.87	2,000

BUREAU SERVICE IN PROTECTING HEALTH

Few people realize the service rendered by Better Business Bureaus in the protection of public health by exposing or reporting on misleading or fraudulent medical advertising. By answering public inquiries, by submitting reports to newspapers and radio stations, and by bulletins on this subject, the Boston Bureau has been performing a service not provided by any other agency. The prevention or discontinuance of questionable medical advertising has depended to a great extent upon the co-operation of publishers and radio stations in refusing advertising shown by Bureau reports to be misleading or fraudulent. In addition, of course, there are innumerable medical advertisements refused by them by their own censorship and standards.

Furthermore, various products have been taken off sale by local reputable merchants as a result of information supplied by the Bureau. While this system has not been fully developed, it is a fact that merchants are gradually assuming more responsibility as to the type of medical products they sell, particularly when they are dangerous, fraudulent, or worthless. There is no doubt that this responsibility will be more commonly recognized by merchants and that it will become a very vital factor in combating fraudulent medical advertising.—*The Bulletin, Boston Better Business Bureau, Inc.*, July 23, 1936.

CORRESPONDENCE

INJUSTICE TO PHYSICIANS

August 15, 1936.

Editor, *New England Journal of Medicine,*

After reading a few criticisms of the industrial insurance act I thought that I would cite a few instances of a like character.

Recently I had occasion to act as surgeon in an industrial accident case in which there was a patient with a severe mutilation of the hand. After about two hours of work with the patient under ether and with the aid of an assistant I repaired the damage. The patient was given aftercare by the family physician. The case was referred by the insurance company to the board for lump settlement. Without consulting me or the doctor who had charge of the patient, the board awarded a lump sum. My bill was cut from $50 to $30. One-third was deducted from the other doctor's bill. However, the lawyer who handled the case was awarded his 10 per cent of the total bill, $175. In other words the legal cost exceeded the medical and hospital bills combined.

Again, whenever called on a charity case to testify before the board I am told that no witness fee will be paid unless the patient wins his case. And even when the patient gets a verdict I am informed that on account of the fact that an impartial examination was made there was no fee for me. These witness cases take an hour or two of the doctor's time and the board finds fault because there are no doctors for the plaintiff. In no other court is a witness called to testify without pay, win or lose.

Some companies make it a practice to reduce doctors' bills, on the chance that the doctor won't bother to dispute the reduction. Well, that's up to the individual doctor.

The point I wish to bring out is that the cost of industrial insurance is very little influenced by medical bills when compared with other costs.

I think that the Industrial Board, while trying to be fair to the doctor, does not take into consideration the time and skill factors. I give considerable time to charity patients during my services at the hospital and I do not find fault. In fact, I enjoy doing this work. However, there is no call to extend charity to the insurance companies in addition to this already heavy burden. Not being a lawyer, the doctor is at a disadvantage, does not know his just rights, and cannot go to a lawyer for every question of law concerning his bill. It is difficult to write

a letter explaining in detail some case in dispute and this is always requested by the board before a hearing is granted. If doctors who have some unusual settlements of their industrial work would write a short letter to the *Journal* stating the difficulty, it might help the rest of us to solve our own problems more satisfactorily.

Yours respectfully,

PAUL NETTLE, M.D.

Bradford, Mass.

NOTICE

UNITED STATES CIVIL SERVICE EXAMINATIONS

Medical Officer, $3,800 a Year
Associate Medical Officer, $3,200 a Year
Assistant Medical Officer, $2,600 a Year

Applications must be on file with the United States Civil Service Commission at Washington, D. C., not later than September 8, 1936.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, AUGUST 31, 1936

Wednesday, September 2—

†12 m. Clinico-Pathological Conference. Children's Hospital.

Saturday, September 5—

*10 a. m. - 12 m. Staff Rounds at the Peter Bent Brigham Hospital. Conducted by Dr. Reginald Fitz.

*Open to the medical profession.
†Open to Fellows of the Massachusetts Medical Society.

September 7, 8, and 9—The Cancer Institute. See page 309, issue of August 13.

September 7-10—International Union against Tuberculosis. See page 554, issue of March 12.

September 7-11—American Congress of Physical Therapy will meet at the Waldorf-Astoria, New York City. See page 52, issue of July 2.

September 9 to 12—Sixth Congress of the International Society for Urology. For details address Dr. Theodor Hryntschak, Rathausstrasse 3, Wien, I.

September 14 and 15—Tercentenary Session of the Harvard Medical School. See page 1166, issue of June 4.

September 16-21—First International Congress of Sanatoria and Private Nursing Homes. See page 803, issue of April 16, and page 264, issue of August 6.

September 22, 23, 24—Twelfth Clinical Congress of the Connecticut State Medical Society. See page 217, issue of July 30.

October 12-18—Third International Congress on Malaria. See page 1076, issue of May 21.

October 19-23—Clinical Congress of the American College of Surgeons. See page 180, issue of January 23.

October 19-31—1936 Graduate Fortnight of the New York Academy of Medicine. See page 1221, issue of June 11.

October 20-22—Academy of Physical Medicine, Annual Meeting, Hotel Statler, Boston.

October 20-23—The American Public Health Association. See page 1226, issue of June 11.

March 30 - April 2, 1937—First International Conference on Fever Therapy. Postponement notice. See page 52, issue of July 2.

April 21-24, 1937—American Society for Experimental Pathology. See page 1075, issue of May 21.

DISTRICT MEDICAL SOCIETIES

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

October 7—Bear Hill Golf Club, Stoneham.
November 18—Bear Hill Golf Club, Stoneham.
January 13, 1937—Bear Hill Golf Club, Stoneham.
March 16, 1937—Danvers State Hospital, Danvers.
May 11, 1937—Bear Hill Golf Club, Stoneham.

KENNETH L. MACLACHLAN, M.D., Secretary.
1 Bellevue Avenue, Melrose.

WORCESTER DISTRICT MEDICAL SOCIETY

September 23—At the Milford Hospital, Milford, Mass. 4:30 p. m.: Visitation of the Milford Hospital unit, which has been recently refinished and added to. 6:15 p. m.: Dinner—complimentary by the hospital. 7:30 p. m.: Scientific program and business session. The speakers for this meeting will be Dr. Richard Miller and Dr. Cadis Phipps of Boston, who will give a symposium on Peptic Ulcer, with Dr. Miller discussing the surgical aspects and Dr. Phipps the medical aspects of this condition.

October 14—Rutland State Sanatorium, Rutland, Mass. 6:15 p. m.: Dinner—complimentary by the State Hospital. 7:30 p. m.: Business session and scientific program. Speakers and subjects to be announced in a later issue of the Journal.

November 5—At 4:30, in the rooms of the Worcester Medical Library, Inc., at 34 Elm Street, Worcester, will be held the fall Censors' meeting.

November 11—Grafton State Hospital, North Grafton, Mass. 6:15 p. m.: Dinner—complimentary by the hospital. 7:30 p. m.: Business session and scientific program.

December 9—St. Vincent Hospital, Worcester, Mass. 6:15 p. m.: Dinner—complimentary by the hospital. 7:30 p. m.: Business session and scientific program.

January 13, 1937—Worcester City Hospital, Worcester, Mass. 6:15 p. m.: Dinner—complimentary by the hospital. 7:30 p. m.: Business session and scientific program.

February 10, 1937—Worcester State Hospital, Worcester, Mass. 6:15 p. m.: Dinner—complimentary by the hospital. 7:30 p. m.: Business session and scientific program.

March 10, 1937—The Memorial Hospital, Worcester, Mass. 6:15 p. m.: Dinner—complimentary by the hospital. 7:30 p. m.: Business session and scientific program.

April 14, 1937—Worcester Hahnemann Hospital, Worcester, Mass. 6:15 p. m.: Dinner—complimentary by the hospital. 7:30 p. m.: Business session and scientific program.

May 6, 1937—At 4:30 in the rooms of the Worcester Medical Library, Inc., at 34 Elm Street, Worcester, will be held the spring meeting of the Board of Censors.

Wednesday Afternoon and Evening, May 12, 1937—Annual Meeting. Time and place for this meeting will be announced in an early spring issue of the Journal.

ERWIN C. MILLER, M.D., Secretary.
27 Elm Street, Worcester.

BOOKS RECEIVED FOR REVIEW

Minor Surgery. Frederick Christopher. Third Edition, Reset. 1030 pp. Philadelphia and London: W. B. Saunders Company. $10.00.

Mental Nursing (Simplified). O. P. Napier Pearn. Second Edition. 328 pp. Baltimore: William Wood & Company.

Why Bring That Up? A Guide to and from Seasickness. J. F. Montague. 130 pp. New York: Home Health Library.

Treatment in General Practice. The management of some major medical disorders. Articles Republished from the British Medical Journal. 250 pp. New York: Paul B. Hoeber, Inc. $3.50.

Fifty-Eighth Annual Report of the Department of Health of the State of New Jersey. 1935. 410 pp. Trenton: MacCrellish & Quigley Co.

The Commonhealth. Volume 23, No. 1. January-February-March. 1936. 80 pp. Boston: Massachusetts Department of Public Health.

The Art of Treatment. William R. Houston. 744 pp. New York: The Macmillan Company. $5.00.

The Eye and Its Diseases. By 82 International Authorities. Edited by Conrad Berens. 1254 pp. Philadelphia and London: W. B. Saunders Company. $12.00.